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Original Articles.

REPORT OF CASES TREATED WITH ROENTGEN RAYS.

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TUBERCULOSIS OF THE SKIN.

CASE 1.—Referred to me by Prof. H. B. Favill of Rush Medical College. Woman, aged 38, with extensive lupus involving the chin, cheeks, and neck of four years' duration; healed with healthy soft white scars after five months. This patient has been well now a year and a half and shows no sign of recurrence. This case has been reported in detail.[1]

CASE 2.—Referred to me by Prof. A. J. Ochsner of the University of Illinois. Lupus of the nose in a girl 16 years old of two years' duration; healed with healthy scars after five months; practically no deformity. This patient has been well for a year and there is no evidence of recurrence. The case has been reported in detail.[2]

CASE 3.—Mrs. A., aged 38, fifteen years married, was referred to me in March, 1901, by Dr. E. A. Matthaei. She has never had a serious illness except vesical calculus and cystitis seven years ago, which were relieved by operation, and has never had any sort of skin eruption, except the one on her chin. Her history gives no suspicion of syphilis. She has four healthy children living and has had one miscarriage of a healthy fetus between the third and fourth months. Her family history is without significance, except that her father died at the age of 49 of chronic lung trouble. The patient is spare-built and not very vigorous-looking, but there is no organic disease.

When she came to me in March, 1901, there were two hypertrophic patches, one on the tip of the chin, the other under the chin, which are well shown in the accompanying photograph, Fig. 1. These consisted of closely set groups of waxy, glistening, almost translucent tubercles, which at a distance looked very much like patches of zoster. The first patch to develop, the one under the chin, appeared about seven years ago as a pinhead-sized lesion around which other lesions gradually developed. This patch was cut out, but recurred in the scar, and two years later the group of lesions appeared on the tip of the chin. Since that time the disease has persisted in spite of treatment and gradually increased to its present condition. The scar in the center of the patch under the chin, resulting from the previous operations, produced a similarity in appearance to syphilis, which was confusing.

The case was first shown by me in March, 1901, at the Chicago Dermatological Society as a case of hypertrophic lupus. There was then a difference of opinion between hypertrophic lupus and tubercular syphilide. The case was afterwards shown at the American Dermatological Association, where most of the members, I believe, agreed in the diagnosis of hypertrophic lupus. The microscopic findings were not conclusive and in order to exclude syphilis the case was for two and a half months put under full doses of iodides and mercury and mercurial ointment locally. This treatment had no effect.

After the failure of mixed treatment the case was put under daily *x*-ray exposures, in June, 1901. The effect was not prompt, but after two months considerable erythema was produced, which was accompanied by marked shrinkage of the lesions. The exposures were continued until August 26, with the production of an acute dermatitis, and by this time the tubercles had shrunken until the surface was flat. The dermatitis was curiously enough confined sharply to the diseased area. Since its first disappearance—seven months ago—there has been no recurrence of the disease. The areas are still red from exposures which the patient has recently had. The only scarring is that which had existed before treatment with *x*-rays was begun. The present condition is shown in the accompanying photograph, Fig. 2.

CASE 4.—I have under treatment a fourth case of lupus which was included in a former report.[2] It is a very severe case of at least twenty-five years' duration in a woman 41 years old. She had had all sorts of treatment and in October, 1898, the diseased area was removed and a plastic operation for the restoration of the nose and the central part of the face done. The disease recurred in the scar and has since involved the nose and all of the parts around. The nose has been almost entirely destroyed since the recurrence. The disease, which has been under treatment more or less constantly for a year, has not spread in that time, which is in marked contrast to the history of the previous year, but it has not been eradicated. The result thus far in this case is similar to those reported by Finsen in cases where the disease has recurred after plastic operations. I have recently treated her much more vigorously than ever before, with very considerable improvement in her condition and in view of this and the fact that we have succeeded in stopping the spread of the disease, I still have hopes of curing her.

I have had under treatment two other patients who were thought to have cutaneous tuberculosis and who have gotten entirely well while having *x*-ray exposures. The diagnosis, however, in neither of these cases was fully established and both patients had other treatment besides the use of *x*-rays, so that in my opinion they are not entitled to consideration in this connection.

The results obtained in Cases 1, 2 and 3 are, I believe, as good as can possibly ever be hoped for by any method. There has been no destruction of healthy tissue in getting rid of the disease and less scarring could not possibly remain after disease as extensive as these cases had. The scars are white, soft, pliable and, indeed, in Cases 2 and 3, are hardly to be called scars. As to the permanency of the results, Case 1 had been well eighteen months, Case 2, twelve months, and Case 3, six months, and none shows any evidence of recurrence. But grant that recurrences should take place, there is every reason to suppose it can be controlled by the same method without scarring or pain. When one contrasts such re-

1. THE JOURNAL A. M. A., Dec. 8, 1900.
2. Ibid., Sept. 28, 1901, 821.

sults with those obtained by former methods of treatment, and remembers the endless routine of pain that the patients suffered in treatment, the fact that this treatment is painless becomes no small consideration.

EPITHELIOMA.

CASE 5.—This case was referred to me by Prof. John L. Porter of the University of Illinois. The patient was a woman, aged 68, with extensive epithelioma of shoulder of fifteen years' duration. The disease entirely disappeared April, 1901, after two months and a half of treatment, with the formation of healthy scars. There is no evidence of recurrence after a year.

This case was reported in detail.[2] Since that time Dr. Ludvig Hektoen, Professor of Pathology in Rush Medical College, has very kindly examined my slides from the case and given me the following opinion: "I have examined the sections from Mrs. C.'s shoulder, both yours and those from 1894, and in my opinion there is no question as to the correctness of the diagnosis of carcinoma (rodent ulcer)."

The histological character of the scar tissue is shown in the accompanying photo-micrograph (Fig. 3) of a section of tissue taken from the shoulder at the site of the largest ulcer.

CASE 6.—Mrs. T., aged 68, was referred to me by Dr. Martin F. Engman of St. Louis, late House Surgeon, New York Skin and Cancer Hospital. The history of the case is as follows: Twelve years ago a small nodule developed upon the ala nasi, which ulcerated and was removed but soon recurred. In the last ten years the lesion has been treated by almost every plan short of complete ablation of the nose, but always with prompt recurrence. In the summer of 1900 she consulted Dr. Frank Hartley of New York, who advised a plastic operation, but she declined further operative procedures.

The condition at the time she began treatment with *x*-rays is indicated in Fig. 4. There was an ulcer occupying almost the entire right ala nasi and spreading down on the cheek; a similar small ulcer was on the left ala, and between the two was an area of scar tissue, the result of previous treatment. The ulcers were typical epitheliomas in appearance, deep, with rolled pearly borders, and fed by numerous dilated capillaries. The disease was evident within the nostrils and the walls of the nostrils were of almost papery thinness. The septum was involved and probably also the nasal bones. The ulcers bled frequently and profusely and were the source of much pain. Altogether the case seemed, both to Dr. Engman and myself, to present as unfavorable conditions for cure as possible.

Judging from the treatment she has had, no one has ever made any other diagnosis than epithelioma, and bearing in mind the ulcers, which were perfectly characteristic, the course of the disease, the age of the patient, and the condition of her skin, which showed at various points patches of senile keratosis, I think that there can not be the slightest uncertainty as to the diagnosis of epithelioma.

She was put under daily exposures to *x*-rays April 26, 1901. By May 10 the borders of the ulcers were shrinking, some healthy epithelium was beginning to grow out from the edges and the discharge was greatly lessened. By June 5 the ulcer on the left side of the nose was healed with a healthy looking scar. By the middle of June the ulcer on the right side of the nose was reduced to the size of a wheat grain. This lesion, at the point where the ala nasi perforated, was slow to heal and the treatments were carried to the point of producing acute dermatitis, so that by August 8 the exposures were stopped on this account. After stopping the exposures, the dermatitis increased until the exposed surface was denuded of epidermis. This healed in about ten days and at the same time the last trace of the ulcer on the right side disappeared. Since that date, over six months, the scars have remained in a healthy condition. The condition then and since is shown in Fig. 5. She has had exposures from time to time subsequently with a view to destroying any undiscovered remnants of the disease. As far as can be told there is no disease left. There is still some tenderness and at times there is some bleeding from the inside of the nose. On December 19 I had Prof. T. Melville Hardie of the University of Illinois examine her and he kindly gave me the following report:

The general appearance of the mucous membrane covering the septum and the external wall of the nostril is that characteristic of atrophic rhinitis. The membrane is in nearly every place thinner than normal and there are numerous spots where there is present a slight dried oozing of blood, which follows the removal of the crusts of dried mucus. This condition is more obvious in the right nostril, but this is the case partly because of the partial obstruction in the left nostril caused by a deflection and ridge of the septum.

The right inferior turbinated bone is smaller than normal, the atrophy having extended to the bone, besides affecting the mucous membrane covering it. The anterior end of the middle turbinated body is enlarged and the mucous membrane covering it is atrophic. Careful examination disclosed no ulceration in the nostril and no infiltration, the only irregular feature of the diseased portion being the over-red color of the mucous membrane of the floor and the inferior turbinated body. The naso-pharynx also exhibits atrophy of its mucous membrane and bleeds when the crusts of dried mucus are forcibly disturbed.

As far as can be judged, therefore, both from the internal as well as the external conditions, this case is free from carcinoma.

CASE 7.—Patient is a healthy man, aged 38. A year ago an indurated nodule appeared on his nose at the site of a previous wart, which ulcerated and spread rapidly. In May, 1901, he came to my clinic at the College of Physicians and Surgeons. The condition at that time is shown in Fig. 6. There was an ulcer involving the tip of the nose the size of a 5-cent piece. Sections taken from the borders of the ulcer confirm the diagnosis of epithelioma, Fig. 7. It was an epithelioma beginning deep in the subcutaneous tissue, showing many pearls and of rapid growth.

He was put under *x*-ray treatment on May 23 and was given exposures more or less regularly for two and a half months. There was a healthy scar by September 15. His condition since that time is shown in the accompanying photograph, Fig. 8.

CASE 8.—Healthy man, aged 72, was referred to me Nov. 5, 1901, from the Illinois Eye and Ear Infirmary, for treatment of the ulcer shown in Fig. 9. This was a sharply punched-out ulcer in the right nasal furrow the size of a little finger nail, with raised, waxy borders, profuse blood supply, and painful. The disease began about two years ago in a warty growth which bled easily. In July of this year it ulcerated and assumed its present condition. I got no section of it, but it was in appearance a typical epithelioma and I believe there is no doubt of the diagnosis. The result is shown in the second photograph, Fig. 10. There is a smooth, soft, white, healthy-looking scar, without induration.

CASE 9.—Man, aged 75 years, was referred to me by Dr. Norval H. Pierce, surgeon to Illinois Eye and Ear Infirmary, on Nov. 5, 1901. About eleven years ago a small growth developed on the inner surface of the auricle near the meatus. This gradually became larger and during the past two years has been the source of considerable pain. He made no effort at treatment until the summer of 1900, when he went to the Illinois Eye and Ear Infirmary. The ulcer was there recognized as an epithelioma and during the summers of 1900 and 1901 he was treated at the Infirmary, whence he was referred to me by Dr. Pierce. The sections taken at the Infirmary

Fig. 1.—Case 3. Lupus hypertrophicus, June 1, 1901.

Fig. 2.—Case 3. September, 1901.

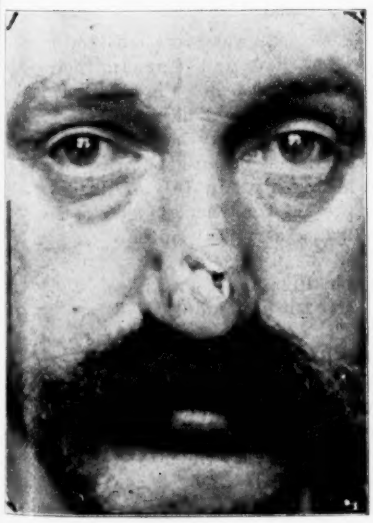

Fig. 6.—Case 7. Cutaneous carcinoma, May 23, 1901.

Fig. 3.—Section of tissue taken from site of cutaneous carcinoma in Case 5, showing healthy scar tissue and smooth epidermis.

Fig. 4.—Case 6. Cutaneous carcinoma, April 26, 1901.

Fig 5.—Case 6. Aug. 20, 1901.

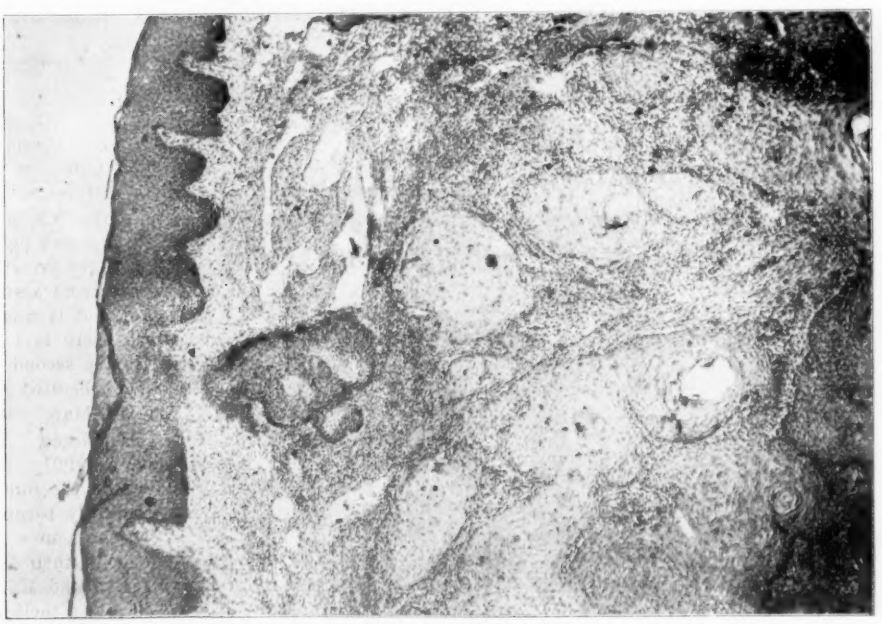

Fig. 7.—Photo-micrograph of Case 7.

Fig. 8.—Case 7. Sept. 15, 1901.

Fig. 9.—Case 8. Cutaneous carcinoma, Nov. 5, 1901.

Fig. 10.—Case 8. Feb. 1, 1902.

Fig. 13.—Case 11. Cutaneous carcinoma, Dec. 9, 1901.

Fig. 12.—Case 10. Jan. 8, 1902.

Fig. 11.—Case 10. Cutaneous carcinoma, Nov. 14, 1901.

Fig. 14.—Case 11. Jan. 27, 1902.

Fig. 15.—Case 12. Carcinoma of the orbit, Dec. 14, 1901.

Fig. 16.—Photo-micrograph of Case 12.

Fig. 17.—Case 12. March 15, 1902, showing entire disappearance of the carcinoma, with a small surface of healthy granulations not yet covered with epithelium.

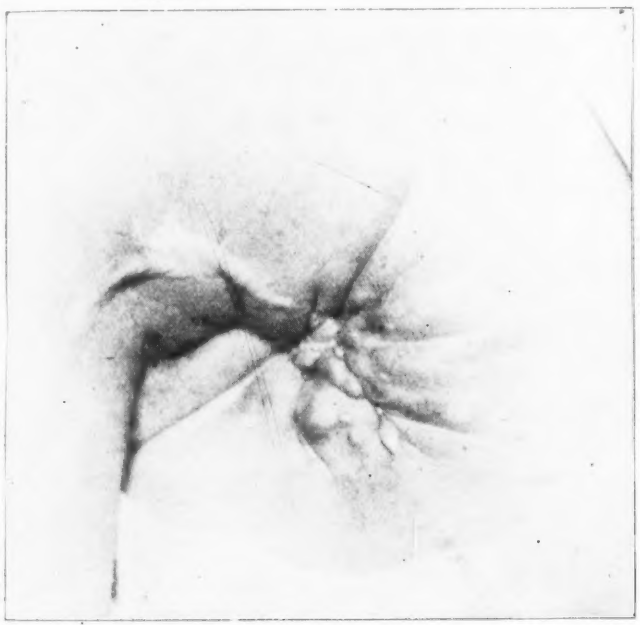

Fig. 19.—Case 13. Recurrent carcinoma of the breast, July 18, 1901.

Fig. 25.—Case 34. Keloid. December, 1900.

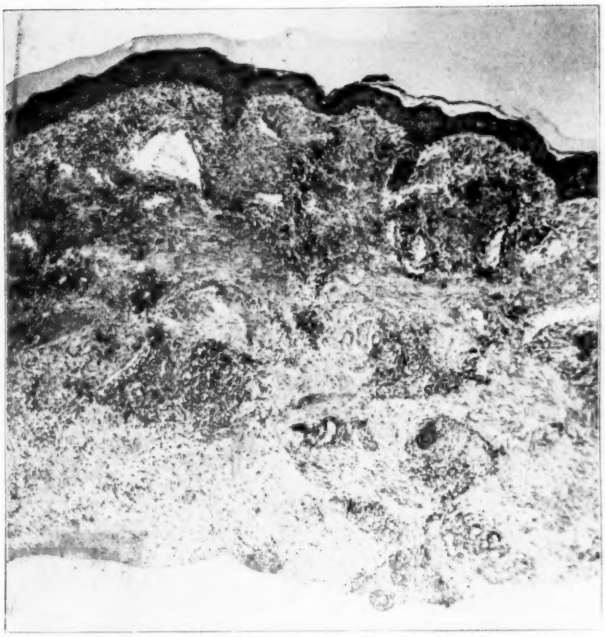

Fig. 18.—Case 12. Photo-micrograph from a section of tumor in stage of subsidence, showing disappearance of carcinoma tissue and the existence of a degeneration product in place of the previous masses of epithelium.

Fig. 20.—Condition of Case 13 since Nov. 8, 1901.

Fig. 26.—Case 34. Nov. 1, 1901.

Fig. 21.—Case 14. Recurrent carcinoma of the breast, Nov. 1, 1901.

Fig. 22.—Case 14. Feb. 20, 1902.

Fig. 23.—Case 30. Sarcoma of the neck, Sept. 2, 1901

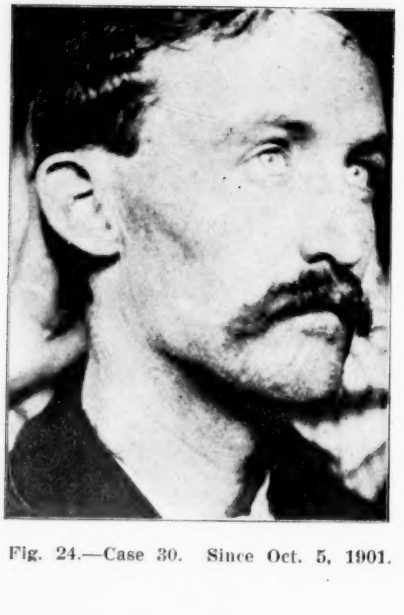

Fig. 24.—Case 30. Since Oct. 5, 1901.

were examined by Dr. E. V. Brown, pathologist to the Infirmary, who made the diagnosis of epithelioma.

When the patient came for *x*-ray exposures there was an epithelioma which involved the circumference of the auditory canal for its external one-third inch and the entire inner surface of the concha, and had spread for half an inch upon the cheek in front of the ear, the tragus having been entirely destroyed. In the last few months it had gotten worse rapidly. He was put under *x*-ray exposures November 5 and given them daily to Dec. 5, 1901, when some erythema developed and the ulcer began to heal. The sittings were nevertheless continued to Jan. 25, 1902, when there developed marked congestion of the exposed area. This has gradually subsided and with its subsidence the ulcer healed. Until a few days ago there remained an ulcer about half the size of a little finger nail. This has healed and the entire site of the epithelioma is now covered by healthy skin. Were the tragus not missing it would be hard to discover that an ulcer had existed. That side of his head has been entirely free from sensitiveness or pain since about two weeks after beginning treatment.

CASE 10.—Mrs. W., aged 61, was referred to me by Dr. M. F. Engman of St. Louis. About twelve years ago a lesion developed on her forehead above the right eye which was recognized as an epithelioma. Two years ago it had developed into an ulcer the size of a half dollar and in November, 1899, she went to Dr. William T. Bull of New York City. Dr. Bull has kindly given me his memoranda of the case as follows: "Circular ulcer of forehead in center and reaching to eyebrows and as large as a 50-cent piece. Edges slightly elevated and hard—movable. This appeared first ten years ago as an indurated nodule and was destroyed by caustics. It reappeared and was cut out three times—the last time four years ago. At operation (Dr. Bull's) the ulcer with a wide margin of skin was removed and the raw surface covered with four skin grafts. Healing was complete in three weeks. Dr. Dunton (33 East 33d St.) examined the tissue removed and pronounced the growth an epithelioma." After Dr. Bull's operation the scar remained healthy until September, 1901, when two small ulcers developed in the border of the scar.

The condition when she came under my care Nov. 14, 1901, is shown in the accompanying photograph, Fig. 11. On the forehead above the left eyebrow there is a white, healthy-looking scar 2x2 inches, which is not movable. On the external border of the scar there were two small ulcers, one at the upper outer angle the size of a little-finger nail, the other at the lower outer angle somewhat smaller. Both had raised, hard, pearly borders, had numerous dilated capillaries around them, and presented the picture of typical small epitheliomas. The upper half of the inner border of the scar was occupied by a red, indurated, scaly patch an inch long by half an inch broad, around which were numerous dilated capillaries. This presented the picture of an inflamed patch of senile keratosis undergoing degeneration into epithelioma.

She was given exposures daily over this patch and over the ulcers until the lesions became somewhat inflamed, and afterwards the dermatitis was kept at this stage. By Dec. 8, 1901—approximately a month—the ulcers were healed and by January 8—two months—the induration had entirely disappeared. The skin was smooth, but quite red from *x*-ray effects. The condition since that date is shown in Fig. 12. The skin at the site of the ulcers is smooth, perfectly soft, and free from induration. The site of the patch of verruca senilis on the inner border of the scar is still slightly red as a result of the exposures, but it is smooth and soft and the induration has entirely disappeared.

CASE 11.—Lady, aged 50 years, was referred to me by her husband, who is a physician. Five years ago the disease began as an indurated tubercle near the inner canthus of the left eye. Its condition, when she began treatment, is shown in the accompanying photograph, Fig. 13. The disease involved an area on the side of the nose and around the inner canthus as large as a 50-cent piece. There were two ulcers in the area, one the size of a fingernail on the side of the nose, the other half that size at the inner canthus. The ulcers were sharply excavated, with elevated rolled nodular borders and around them the tissue was indurated and waxy-looking. It was a typical small rodent ulcer such as is often seen in this location, but no tissue was gotten for examination. The result after two months of treatment is shown in Fig. 14. There is practically no scarring; the skin is white and smooth and there is no induration. It would be hard to say that any ulcer had existed. The case illustrates the ease with which lesion about the eye can be treated with *x*-rays.

CASE 12.—Spare-built man, aged 35, was referred to me by Dr. T. J. Knudson from St. Luke's Hospital. Eleven years ago a small nodule appeared on the right cheek below the eye, which gradually increased in size and after two years ulcerated. The lesion was treated from time to time by different surgeons in various parts of the United States. Four years ago he was admitted to Cook County Hospital in the service of Dr. T. A. Davis. Dr. Davis did a radical operation, removing the ulcer and a large amount of the surrounding tissue and restoring the lower lid by an extensive plastic operation. At the end of a year the disease recurred in the scar and rapidly enlarged, involving the orbit. Last winter he was in Cook County Hospital in the service of Dr. Charles Adams. The disease had then attained such an extent that a radical operation was not undertaken. He recently went to St. Luke's Hospital, whence after a few weeks' attention he was referred to me by Dr. Knudson.

When he came to me the disease involved the entire orbit, the upper and lower lids, the side of the nose and the cheek. A shrunken atrophic globe remained, which was retracted deep in the orbit. Before undertaking treatment by *x*-rays I had Dr. W. H. Wilder see him and at my request Dr. Wilder removed the eye on December 5. No attempt was made to destroy the carcinoma in this operation and on December 14 he returned for *x*-ray exposures. The accompanying photograph, Fig. 15, does not adequately show the condition at that time. A photo-micrograph of a section of the tissue taken from the lower lid is shown in Fig. 16 and confirms the diagnosis of epithelioma. At this time the patient was suffering exquisite pain, which had not been relieved by removing the eye, and from anxiety, pain and loss of sleep his physical condition was greatly reduced.

He was put under *x*-ray treatment December 14 and had almost daily sittings to January 27. The exposures were carried to the point of producing erythema and slight desquamation, but no weeping. Within a week after beginning the treatment his pain had ceased and the discharge began to diminish. Since that time the improvement has been continuous. The borders and the nodules have gradually shrunken and the ulcer has become smaller, until the lesion remaining bears no longer any resemblance to epithelioma. The small surface still not covered by epidermis has the appearance of a healthy granulating wound. All surrounding tissue is smooth, soft, freely movable, free from induration, and almost unscarred. The present condition is shown in Fig. 17. There was so much superficial destruction of tissue that the formation of epidermis has not taken place over the entire surface. As shown in the photograph there is still an area on the inner side of the orbit about the size of a dime which is uncovered by epidermis, but is still diminishing in size. The patient has been free from pain practically since the beginning of the treatment, and has entirely regained his health and spirits.

It is interesting to compare sections of tissue taken before the disease was put under *x*-ray treatment with sections taken while the tumor was subsiding. Figure 16 is a section from the border of the ulcer before the treatment was begun; it shows abundant infiltration of embryonic epithelium. Figure 18 shows a section taken from the same location when the tumor was subsiding. The carcinomatous masses are now replaced by a degenerated wavy substance without structure and staining a faint blue with hematoxylin. The contour of the epithelial cells has been lost and the cell nuclei have disappeared. There is evidently a degenerative process of some sort going on, but what it is can not be said.

The above is a list of consecutive cases of epithelioma and I believe all of them can be claimed as successful.

That there will not be recurrences time alone can show, but from the character of the scars I am willing to hazard the opinion that these cases will not show an unusual proportion of recurrences. If recurrences do take place *in situ* there is every reason to believe that their management would not be troublesome. I do not believe any other method of treatment can show such results in epithelioma as some of the above. Take for example Case 6 and Case 12; the results are unique. Case 12 was beyond relief by any other method. That the ulcer in his orbit should have filled up and healed over with healthy skin would not be regarded as possible were the patient not demonstrable. Such a result in such a case is, I believe, entirely unique.

My experience in epitheliomas is such as to give me great confidence in the method. I have had no case thus far in which the disease failed to yield and usually yield promptly. The scars are soft, free from induration, smooth, and of the color of the normal skin or white, and absolutely healthy looking; indeed, there is almost no scarring.

CARCINOMAS OF THE BREAST.

CASE 13.—Mrs. K., aged 48, six years ago, had an operation by Prof. E. C. Dudley of Northwestern University for laceration of the cervix, and her general health has been bad for several years, with complete nervous break-down, but without demonstrable lesion. In 1899 a tumor developed in her right breast, which was recognized as a carcinoma and in April, 1900, was removed. Recurrence became evident in the scar six months after removal, in the fall of 1900. Eight months later, in July, 1901, she began *x*-ray exposures; in the mean time, in the spring of 1901, she had been seen by Prof. Christian Fenger and the case pronounced inoperable. The condition when she came to me is shown in the accompanying photograph, Fig. 19. The skin and subcutaneous tissue for an area six inches in diameter around the center of the scar was dense, hard, and waxy-looking and infiltrated with carcinoma. In and around the center of the scar there was a group of waxy-looking nodules which were for the most part denuded of epidermis and at points ulcerating. The arm was greatly swollen and tensely edematous down to the fingers.

The case was put under daily *x*-ray exposures July 18, 1901, and by August 15 marked dermatitis had been caused over the entire exposed area, and a bulla had formed over the center of the tumor. The treatment had been as vigorous as I dared because it seemed evident if anything was done it had to be done quickly. This effect disappeared by September 2, when the entire surface had become covered with epidermis. At the same time there was a very marked shrinking in the nodules, and the edema entirely disappeared from the arm. With the exception of an interval of six weeks, when she was acutely ill, the patient has had treatment regularly from September to date. An acute dermatitis was again set up in the latter part of October, but since that time the exposures have not been carried to the point of producing an acute effect. On November 8 I made the following note: "The dermatitis has entirely disappeared; the skin is of normal color except for some pigmentation around the periphery of the exposed area. The tissue, where the tumor existed, is smooth and it is impossible at present to find any evidence of carcinoma in this area. All of the nodules have entirely disappeared." The chest wall has remained in this condition since November 8. The condition at the present time is shown in the accompanying photograph, Fig. 20, for which I am indebted to an amateur photographer. As far as her attending physician, who is an ex-interne of Cook County Hospital, and I can ascertain there is no evidence of carcinoma left in the breast or shoulder. There has been no return of the edema to the arm. The right arm is slightly larger than the left, but there is no pitting on pressure and it is not in the slightest degree edematous. The increase in size is, I believe, a permanent connective tissue hyperplasia, due to the long-continued lymphatic obstruction and analogous therefore to an elephantiasis. The disappearance of the edema in this case is, of course, a highly instructive fact. This patient is not in good health, but what the character of her present trouble is, first-class men are unable to decide. Her present condition is in no way directly connected with her breast trouble and it can not be traced to any metastasis.

CASE 14.—Mrs. C., aged 58, was referred to me by Dr. C. C. Gratiot of Shullsburg, Wis. The patient was in Dr. Christian Fenger's care in Passavant Hospital in July and August, 1900, and the following facts are taken from the hospital record, which Dr. Fenger kindly placed at my disposal: "Her present (July, 1900) trouble began about six years ago when patient noticed a little hard lump on the inferior aspect of the left breast on the axillary side. There was a scarcely perceptible enlargement of the hard area until about two years ago when the patient noticed a more rapid enlargement. She then consulted Dr. Sheldon of Madison, Wis. At that time this growth developed very fast and broke through the skin and formed an open sore, which grew in dimensions until it is now the size of a silver dollar. Dr. Sheldon advised an operation, whereupon she consulted Dr. Fenger." Dr. Fenger removed the breast with the axillary and supraclavicular glands in July, 1900. A few months after removal the disease reappeared in the scar. She returned to Dr. Fenger last summer, but he found the case beyond operation. The condition when she came to me November 1 is shown in the accompanying photograph, Fig. 21. As seen in the illustration, there was a mass of carcinomatous tissue on the left side involving an area of about a square foot. The nodules varied in size from a hazel-nut to the size of a small apple. At the upper inner angle there were a couple of ulcers 2½ to 3 inches in diameter. Around the main mass and separated from it by distances of from two to three inches or more, were numerous nodules the size of a hazel-nut. She had on two occasions suffered alarming hemorrhage from the surface. Dr. Fenger had thoroughly removed the glands in the axilla and above the clavicle and no enlarged glands in either of these locations were found. When she began treatment she was suffering a great deal of pain. She was so weak that a nurse had to bring her by easy stages from the nearest hotel for her treatments and she was in every way thoroughly haggard and worn.

She was put under *x*-ray exposures on November 1 and the sittings were given daily for two months and every other day or less frequently after that. Two weeks after the treatments were begun she volunteered the statement that her pain was gone; and she has had none since. On January 17 I made the following note: "There has been rapid subsidence of the tumor going on for the last month. The improvement can be seen from week to week. There is at present only a slight superficial ulceration at one point about the size of a dime and one small nodule the size of a pea. The surface is free from infiltration and thickening and the redness has almost disappeared. The skin is considerably pigmented." Improvement has continued since that time. The condition at the present time is indicated in the accompanying photograph, Fig. 22. There is no evidence of carcinoma left on the chest wall. There is a thin, soft, brownish-white scar which is almost freely movable. Around the borders of the scar there are numerous dilated capillaries, the remnants of the previous abundant blood supply going to the tumor. It seems hardly credible that this scar represents the site of the previous tumor.

Her general condition has progressed equally well. As I said above, she has been free from pain since ten days after treatment was begun. Since January 1, she has been strong enough to come in alone three times a week for her treatments from a town thirty-five miles from Chicago. She has regained her appetite and has increased in flesh decidedly (10 to 15 pounds). Now she presents the picture of a healthy old lady.

CASE 15.—Miss X., aged 49, was referred to me by Dr. A. J. Ochsner. In February, 1899, she noticed a hard lump in the left breast, which was followed by gradual retraction of the nipple. In February, 1900, the breast was removed

by a prominent surgeon. The disease soon recurred in the scar and in October, 1901, a second operation was done, after which the wound healed but soon broke down in two ulcers; then she consulted Dr. Ochsner, who referred her to me. When she began treatment with *x*-rays there were two ulcers in the scar each the size of a 25-cent piece, surrounded by indurated tissue. The case was put under *x*-ray exposures on November 25 and by January 7 had had twenty exposures when considerable erythema developed, and exposures were stopped for two weeks. Since that time she has had exposures every other day or at longer intervals to date, with the maintenance of pigmentation and very slight irritation. With the first development of dermatitis the ulcers rapidly grew smaller and by January 20 had entirely disappeared along with the induration. Since that time the scar has been soft and free from all evidence of carcinoma. Within a month she has been examined by Dr. Ochsner, who found no evidence of carcinoma remaining. This case had had two operations and practically no further hope from operation remained. Its rapid improvement under *x*-rays illustrates the advantages of getting hold of these recurrent cases early.

I have treated three cases of carcinoma of the breast without getting rid of the local trouble. Two of these, however, were under treatment less than six weeks, so that the method did not have a fair trial. These cases were as follows:

CASE 16.—Mrs. R., aged 38, had a very extensive recurrent carcinoma of the breast. The case had been passed upon as inoperable by Dr. Charles McBurney of New York. This was the first case of this sort that I treated and the chances of benefit seemed to me then so infinitesimal that with my concurrence treatment was discontinued after five weeks. There was no positive effect.

CASE 17.—Mrs. W., aged 65, with inoperable carcinoma of the breast, was referred to me by Dr. A. J. Ochsner. This patient was under treatment for a month without apparent effect and quit.

CASE 18.—The third case must be put down as a failure. Mrs. J., aged 50, with recurrent carcinoma of the breast, was referred to me by Dr. J. H. Hoelscher. There was a thick mass of carcinomatous tissue, four inches in diameter, ulcerating at the center and attached to the ribs at the location of the nipple. The supraclavicular glands were enlarged. This patient was under treatment from Sept. 3 to Jan. 24, 1902, having in all 66 sittings. Only once was the treatment carried to the point of producing acute dermatitis. There was no apparent effect on the disease and she died suddenly in January from involvement of the lung. This case looked like a favorable one as far as getting rid of the local disease was concerned. Why I failed in this I have not satisfactorily explained to myself. It was a typical scirrhus of the breast. It is unquestionable that there is a difference in individuals in their susceptibility to *x*-rays. This is seen in the reaction of healthy as well as diseased tissues. I have seen it displayed in different forms of carcinoma, although the above case and perhaps Case 20 are the only ones of my cases in which *x*-rays have failed to produce a positive effect after sufficient exposure.

* * * * * * *

DEEP-SEATED CARCINOMAS OF NECK AND HEAD.

CASE 19.—Man, aged 68, was referred to me by Prof. R. R. Campbell, of the Chicago Policlinic. In the spring of 1901 he had an epithelioma removed from the lower lip, with rapid recurrence in the glands of the lower jaw and neck. A radical operation was done in June, which was followed by a rapid recurrence of the disease in the supraclavicular glands. Dr. J. B. Murphy and Dr. Christian Fenger saw the patient in September and he was told that there was no further hope from operative procedures.

When he began *x*-ray treatment there were tumors on either side of the neck above the inner third of the clavicle as large as an egg and the surrounding tissue was infiltrated with carcinoma. He was put under *x*-ray exposures on September 26 and kept under daily sittings with a few intervals, the longest being ten days, for three months. Within a month after the exposures were begun and at the time that dermatitis was produced there was very marked subsidence of the tumors; they disappeared almost entirely and remained in this condition for six weeks. After an interval of nearly three months the case was seen again by Dr. Murphy on December 3. He gave me his opinion at that time that the tumors had not only been checked in growth, but that they were very markedly smaller than when he had seen them three months before. Soon after this, however, they began to grow rapidly and the patient would undoubtedly have died very promptly from carcinoma had he not been taken off by an intercurrent malady.

In this case we were hampered by the fact that tissue transposed in the plastic operation, which was very extensive, was quite sensitive to the *x*-rays and the patitnt was unwilling to have the full effect of the rays produced.

I have under treatment at the present time two very similar cases. Case 20, man, aged 55, was referred to me by Dr. L. L. McArthur, Surgeon to St. Luke's Hospital. This is a case of rapid recurrent carcinoma of the neck after removal of carcinoma of the tongue. The case has been under treatment since November 25 and has grown worse. For three weeks in January the treatments had to be omitted and during that time the tumor developed very much more rapidly than before. The exposures were renewed on February 3 and have been given vigorously since that time. That the disease will be checked seems altogether improbable.

CASE 21.—Man, aged 60, is a case very similar in its history to Case 19. This patient was operated on by Dr. Butlin of London and later by Dr. Maurice Richardson of Boston. In order that he might be nearer his home he was referred to me Jan. 18, 1902, by Dr. Richardson and Dr. F. V. Williams, who had been giving him *x*-ray exposures. In this case the floor of the mouth, the neck and the lower jaw were riddled with carcinoma and the patient's condition has been regarded as perfectly hopeless. This patient had exposures as strong as I dared give them and a dermatitis was quickly produced. This patient died March 10 from exhaustion. At the time of his death all of the nodules in the neck had disappeared and some healing of the sinuses had taken place. Altogether, the subsidence of the carcinomatous tissue had been remarkable.

CASE 22.—Man, aged 71, was referred to me by Dr. A. J. Ochsner, with a rapidly growing carcinoma the size of a fist, involving the right angle of the lower jaw. This patient continued under treatment a month and quit after there had been produced considerable softening of the tumor. There seemed good grounds for hoping to reduce this tumor had the treatment been continued.

CASE 23.—Man, aged 64, referred to me by Dr. George F. Bradley. In January, 1901, an epithelioma was removed from the lower lip by a V-shaped incision. In June, 1901, Prof. N. Senn of Rush Medical College did a radical operation, removing part of the lip and the glands beneath the jaw. About six weeks before he came to me the disease recurred and at the time I saw him there was a tumor occupying the whole area under the chin as large as a small apple, with an ulcer in the center almost two inches in diameter and easily an inch deep. There were numerous enlarged glands at both sides of the neck. He was seen by Dr. A. J. Ochsner, who advised the use of *x*-rays.

The patient has been under treatment since October 24. There was for a while great improvement in the case. The ulcer under the chin was reduced to the size of a hazel-nut, but lately the patient has been going backward and most of the improvement has been lost.

CASE 24.—Man, aged 70, was referred to me by Dr. William H. Wilder, with extensive carcinoma involving all the struc-

tures in and around the orbit of the right eye. The growth had progressed within the cranium when the treatment was begun. The treatment in this case continued two months with decided amelioration in his condition for a while, both as regards the appearance of the growth and his pain, but later evidences of rapid intracranial growth appeared and the treatments were discontinued.

Looking back at this case it is Dr. Wilder's opinion and mine that we should have taken out enough of the bone of the orbit to have laid bare the structures beneath, so that the *x*-rays could have been thrown directly on the intracranial growth. Dr. Wilder suggested to me that had this been done there might have been a chance of controlling the disease, so marked was the effect upon the diseased tissue which was directly exposed.

CARCINOMAS IN THE ABDOMINAL CAVITY.

CASES 25 to 29.—I have had under treatment five inoperable cases of carcinoma in the abdominal cavity; one from Dr. A. J. Ochsner, two from Dr. Christian Fenger, one from Dr. Fernand Henrotin of Chicago, and one from Dr. M. DeWitt Pollock of Decatur, Ill. Two of them died within a week, and one six weeks after beginning treatment. One of them has just died three months after beginning treatment. The fifth case is still under treatment four months after it was begun, but will probably soon die. All of these cases were of the most desperate character when treatment was begun, and in the opinion of the physicians who watched them there has been some reason to think that they have been more comfortable under the exposures and that the pain has been decidedly relieved. But the course of cases of this sort is sufficiently uncertain to interfere with any definite claims of benefit in so small an experience.

There is little ground for hoping that the *x*-rays, as they must be applied at present, have more than a slight effect on malignant growths situated in the cavities of the body. There is some reason to believe that the use of *x*-rays in such cases has an effect in relieving pain. And as *x*-ray exposures may be given these patients without disturbing them or interfering with their comfort there seems no reason why they should not have the benefit of the remotest chance of relief.

SARCOMA.

CASE 30.—Man, aged 24, was referred to me by Dr. A. J. Ochsner on Sept. 2, 1901. This case was reported in detail.[3] Briefly, his history is that in February, 1901, he noticed a hard swelling below the angle of the jaw on the left side of the neck which gradually increased in size, and in May, 1901, he noticed a similar hard swelling on the right side of the neck which rapidly increased in size. In August, 1901, he consulted Dr. Ochsner, at which time there were large immovable diffuse swellings on either side of the neck, the size of a man's fist. Dr. Ochsner made a diagnosis of sarcoma and on August 19 removed the tumor on the left side of the neck. On September 2 he sent him to me for exposures to *x*-rays. At the time there was a healthy scar on the left side of the neck and a large sweling on the right side, as indicated in the accompanying photograph, Fig. 23. It was hard, diffuse, not movable, and the neck was almost rigid from interference with motion. Under a month's *x*-ray exposures this entirely disappeared, the result being shown in Fig. 24. Since that time the man has gained 12 pounds in weight and on November 1 wrote me that he had gone back to his work. There was no evidence of recurrence up to March 1—five months—but on March 10 he writes me that some swelling is returning. I wanted to have him for further treatments after the first month, but he was unable to stay in the city. I have been extremely anxious to have him for further treatment, but thus far he has been unable to return.

As to the diagnosis in this case, Dr. F. R. Zeit, professor of bacteriology and associate professor of pathology in Northwestern University has kindly given me the following report:

"My diagnosis of small round-cell sarcoma is based upon: 1. The histo-pathology of the tumor—small round-cells, somewhat larger than red blood corpuscles, densely packed together, traversed by blood channels without walls and the almost entire absence of stroma or connective tissue framework; and 2, the clinical description of Dr. Ochsner—a large diffuse, infiltrating and proliferating rapidly growing tumor in the neck, no inflammation, and which at no time was circumscribed or movable. No enlargement of other glands. I think this effectually excludes all simple hyperplasias, lymphadenoma, lymphatic leukemia, Hodgkin's disease (pseudo-leukemia). This tumor was not produced by a progressive development of lymphadenoma from gland to gland, but started, no doubt, from one gland and infiltrated by proliferation the surrounding structures at once."

CASE 31.—Man, aged 67, osteosarcoma of the right shoulder, with symptoms of sarcoma of the bladder. There was profound cachexia and evidences of general sarcomatosis. The patient was put under *x*-ray exposures, chiefly with the hope of relieving his pain. He was given 16 exposures without effect upon the tumor, but according to his voluntary statement with considerable relief from pain. With my approval the treatment was discontinued.

CASE 32.—Woman, aged 60, with extensive inoperable sarcoma involving the right pectoral muscles and shoulder. She had treatment for a month with marked relief from pain according to her voluntary statement and in the opinion of her physician, Dr. William Fuller, but without further effect.

GRANULOMA OF UNCERTAIN CHARACTER.

CASE 33.—Man, aged 57, was referred to me by Dr. A. J. Ochsner. The diagnosis in this case was not positive. The patient came to Augustana Hospital in Dr. Ochsner's service, Oct. 20, 1901, when the following history was taken: "Two months ago a carbuncle developed on the right cheek. The whole right side of face became painful and swollen; this subsided and three weeks ago the patient noticed a small soft swelling at site of carbuncle. This has increased to present size. It has been opened three times, discharging blood and serum. No tenderness or pain is present. Present condition: Right cheek is slightly reddened and indurated. Downward and forward from malar bone a softish swelling with few crusts, 2.5 cm. in vertical diameter and 2 cm. in horizontal diameter. On pressure discharges sero-purulent fluid. Mucous membrane on inner surface opposite tumor smooth." General health is good; a well-nourished healthy man.

Dr. Ochsner removed the entire mass, going well out beyond the diseased tissue, and closed the wound. The wound remained clean but failed to heal and the tissue around began to break down and within two weeks there was an unhealthy ulcer with a cavity the size of an olive surrounded by bluish flabby tissue.

The pathologic findings were not definite. It was a granuloma with numerous giant-cells, but its character was not definitely determined.

The case was then, November 2, put under daily *x*-ray exposures and practically no attention paid to the local dressing. In two weeks some dermatitis was produced and the ulcer began rapidly to fill up. In three weeks it was healed with a perfectly healthy scar and has remained well to date.

KELOID.

CASE 34.—Boy, aged 10 years, was referred to me by Prof. D. A. K. Steele of the University of Illinois. The patient had a keloid form in his vaccination scar and another keloid form upon a scar on the helix of his right ear. They were removed and promptly recurred. The keloid on the arm was a typical keloid, as will be seen in the acompanying photograph, Fig. 25. It was 2½ inches long, three-quarters of an inch broad and one-half inch high. Each of the stitch scars showed

3. JOUR. A. M. A., Jan. 18, 1902.

a keloid about the size of a marrow-fat pea. The keloid on the ear was a curious-looking globular tumor an inch in diameter, purplish in color, with dilated blood vessels coursing over it and had grown rapidly. It bore in appearance a resemblance to a sarcoma.

The keloid on the arm was put under *x*-ray exposures in December, 1900, and proved entirely rebellious to daily sittings for a long time. It was not until after 80 sittings that any effect was produced. Then I carried the treatment to the point of producing a very acute dermatitis, which was followed by the formation of a superficial necrotic membrane. This healed over in three weeks and after that time (September, 1901) the keloid rapidly shrank. It had practically disappeared by Nov. 1, 1901. The condition since that time is shown in Fig. 26. The entire keloid has disappeared, except for a slight ridge down the center of the scar. I think that this has perhaps increased slightly since the exposures were omitted in November, so that I do not believe a successful result can yet be claimed.

It was interesting to note the sharp limitation to the keloid of the acute inflammatory process produced by the *x*-rays. There was erythema in the exposed normal skin surrounding it, but this disappeared much more rapidly than the inflammatory process in the keloid. The disappearance of this keloid was due to absorption and not to necrosis. The only ulceration that appeared was the superficial membrane not thicker than parchment, but a mass of tissue disappeared about one-half inch in thickness.

Fig. 27.—Case 35. Hodgkin's disease, Sept. 11, 1901.

In July, 1901, the treatment was applied to the tumor over the ear and after 16 sittings (August 10) was carried to the point of producing dermatitis. After the development of the dermatitis there was a very perceptible shrinking in the size of the tumor. The treatment was neglected by the patient until December, 1901, and since that time has been taken up in a desultory way. The growth has decreased very decidedly since the treatments were renewed, but there is still a tumor left about half the original size.

Keloids are scar tissue of such marked vitality that it would be expected *a priori* that they would not be affected by *x*-rays except by producing a reaction that would destroy any healthy tissue. Yet this keloid was certainly made to disappear without necrosis and without affecting the normal connective tissue. It was found in my first case of lupus that there was a great thinning and softening of the scar tissue in the neck, and this observation is a confirmation of that of other workers. There seems, therefore, to be some reason to hope that the method may be of use in attacking scars.

PSEUDO-LEUKEMIA.

CASE 35.—Boy, aged 4, was referred to by Dr. A. J. Ochsner. This patient was in the Presbyterian Hospital in May, 1901, in Dr. Fenger's care, and I am indebted to him for the hospital record from which the following facts are taken: The family and personal history prior to the development of the present trouble are without significance. The present trouble began in December, 1900, as small hard swellings below either ear. The mother stated that every two or three days she could see more of the swelings appear. The swellings were symmetrical for about three months, when the right side grew larger. May 20, 1901, when the patient entered the Presbyterian Hospital, the following notes were made:

"Submaxillary, cervical, and supraclavicular lymph glands are enlarged, hard, discrete. There are tense swellings both anteriorly and posteriorly, especially on the left side of the neck. No other enlarged lymph glands found." The blood examination showed 4,200,000 reds and 10,000 whites; hemoglobin 50 per cent.

Dr. Fenger dissected out two lymph glands in the neck and the "pathologist's report states that there is no evidence of tuberculosis in the gland and that the histology coincides with that of a pseudo-leukemia." The diagnosis of Hodgkin's disease was made and "the patient discharged with a statement to parent that little if anything can be done to relieve patient." In August, 1901, patient entered Augustana Hospital in Dr. Ochsner's service. The condition of the swellings at that time is indicated in the following note: "A large irregular swelling on the right side of the neck, size of a small fist, extending from below and behind the right ear to the clavicle. Numerous hard masses varying in size from a filbert to an English walnut can be felt. Small swelling of the left side of the neck about half the size of that on the right. The swellings are not tender, painful or red and are freely movable. No enlargement of liver or spleen." The diagnosis of Hodgkin's disease was made and Dr. Ochsner dissected out a large mass of glands on the right side of the neck.

Fig. 28.—Case 35. Since Nov. 1, 1901.

On September 11 he referred the case to me for exposures to *x*-rays. The condition is shown in Fig. 27. There was a healthy scar on the right side of the neck and on the left side a swelling the size of a fist, made up of a group of greatly enlarged glands. They were hard, painless, and freely movable. These glands were put under exposures to the rays on September 11. In the course of a month, erythema

was produced and the glands rapidly diminished in size. At the end of two months there remained three or four small glands on this side of the neck which were quite soft and not larger than a filbert. Almost all the swelling had disappeared and the slight swelling that remained was as soft as adipose tissue. The case has been under desultory treatment from that time to this without change. The condition at the present time is shown in the accompanying photograph, Fig. 28. The general physical and mental condition of the patient has improved very greatly. The number of red and white corpuscles are about the same as when the blood was examined May last; there is now 80 per cent. hemoglobin as against 50 per cent. in May.

CASE 36.—Man, aged 50, was referred to me by Dr. L. L. McArthur. The patient had typhoid fever six years ago, but aside from that has had no serious illness since childhood. In childhood he had an attack of inflammatory rheumatism; otherwise, his personal and family history are negative.

In April, 1900, he noticed a swelling under the right arm and another on the inside of the elbow. These gradually increased in size and in October, 1900, he consulted Dr. D. N. Eisendrath, who found in addition enlarged glands in the neck, in the other axilla, in the groins, and along the side of the

Fig. 29.—Case 36. Hodgkin's disease, Dec. 18, 1901.

abdomen. The case was seen in consultation by Dr. Christian Fenger, who agreed with Dr. Eisendrath in the diagnosis of Hodgkin's disease. The diagnosis of Hodgkin's disease was also made by Dr. E. J. Doehring and Dr. M. L. Goodkind. The blood examination made at the time that Dr. Eisendrath saw the case showed 80 per cent. hemoglobin, 5,000,000 red corpuscles, and 10,000 whites.

Previous to beginning treatment with *x*-rays the patient had for a long time been taking arsenic and for several weeks had been having parenchymatous injections of arsenic into the tumors. In spite of this treatment the glands had not decreased. The patient's general health had failed and he showed marked cachexia.

The size of the tumor in the right axilla when *x*-ray treatment began is shown in Fig. 29. It was about as large as a child's head and interfered seriously with the movement of the arm. The right epitrochlear gland was almost as large as a goose egg. Its vertical diameter was four inches; and its transverse diameter about two and a half inches. Both of the glands were movable but densely hard.

At Dr. McArthur's suggestion I began daily exposures over the right epitrochlear gland November 19, while he continued the parenchymatous injections of arsenic in the axillary gland. By December 18 I had produced considerable erythema over the elbow and by that time the gland was reduced to less than half its previous size. In the meantime the axillary gland, which was having injections of arsenic, showed no change. These injections were then stopped and at Dr. McArthur's suggestion I began exposures also over the axillary glands. The exposures over the epitrochlear gland were continued and by Jan. 1, 1901, all apparent swelling had disappeared and only a soft gland the size of a filbert was left. By January 7, after fifteen sittings and upon the development of considerable erythema, the axillary gland had become quite soft and very much reduced in size. By January 20, almost all of the axillary swelling had disappeared and the condition has remained the same since that date—Fig. 30. There is very slight puffiness at the site of this tumor, but it is as soft as the softest adipose tissue. The man's general physical condition has been greatly improved. Dr. M. L. Goodkind, who saw the patient after an interval of several months, particularly called my attention to the

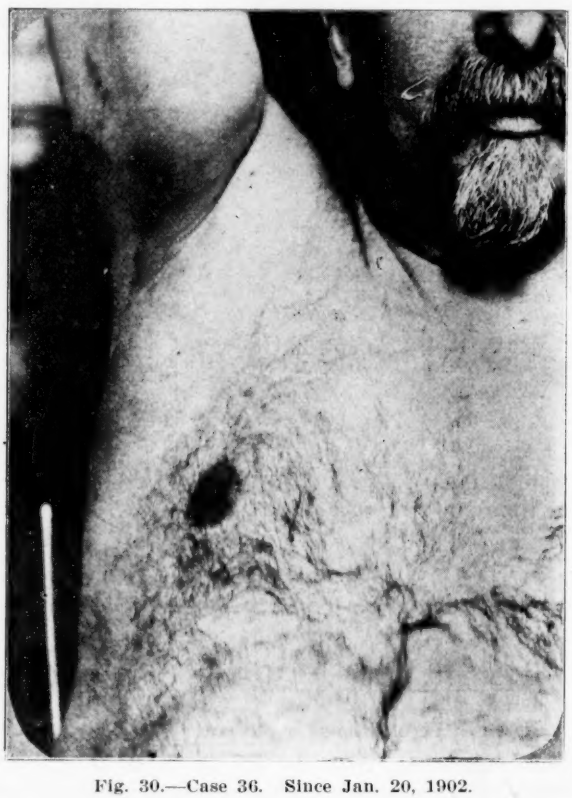

Fig. 30.—Case 36. Since Jan. 20, 1902.

improvement in his general condition, which he characterizes as astounding.

The first case continued the use of protonuclein and the second arsenic, at the suggestion of their physicians, during most of the time that they had *x*-ray exposures and that mitigates against the conclusiveness of the evidence in favor of the effect of *x*-rays in these cases. The fact remains, however, that in the case of the child the protonuclein had absolutely no effect on the glands before the *x*-ray exposures were begun, and in the case of the man the disease had progressed in spite of the vigorous treatment with arsenic. It is also to be borne in mind that the tumors in pseudo-leukemia disappear spontaneously at times and act in the most erratic manner. Against this we have the fact that in neither of these cases, after a year and a year and a half respectively, had any change shown itself, and no acute disturbance of health of any sort occurred at the time that these cases were under *x*-ray treatment to precipitate

the subsidence of these glands. On the other hand, the sequence of the exposures to *x*-rays and the subsidence of the glands in these cases was as close and direct as it is possible to conceive. In the case of the child the tumor began to subside with the evidence of the accumulation of *x*-ray effects on the tissues. It was the same when the epitrochlear gland in the man was exposed and the unexposed axillary gland showed no change. The same sequence was shown in the axillary gland when it was put under the influence of *x*-rays. In each instance evidence of effect on the gland began to show itself when a corresponding effect on the skin was produced. That the subsidence of the gland might occur spontaneously in one case at identically the same time with the exposures to *x*-rays is a coincident that might happen; that this coincident should happen in two instances in direct succession is in the highest degree improbable; and that the same coincident should happen in the third instance in succession is mathematically practically impossible.

LEUKEMIA.

I have exposed one case of splenic leukemia to *x*-rays. This case was a woman, aged 50, referred to me by Dr. A. J. Ochsner. She had an enormous spleen. The blood examination showed 50 per cent. hemoglobin, 3,000,000 reds, and 300,000 whites. She was given *x*-ray exposures over the spleen for a month with no effect whatever. The exposures, however, were not carried to the point of producing any apparent effect on the skin and in my judgment the case shows nothing.

CONCLUSION.

As will be seen, I have not to report an unbroken series of successful cases treated with *x*-rays, but I believe the results attained are such as to give encouragement. For it must be borne in mind that the cases I report are of a character that will never allow of an unbroken series of successes. Excepting a few epitheliomas the whole list represents cases which had baffled skilful men or had been passed upon as hopeless by masters of the profession. A more unpromising group of cases could hardly be imagined. That even some of these cases have been controlled or had their progress stayed seems enough. Many of these cases, when they came under treatment, had attained a much more serious character than they had when first recognized as hopeless. When such cases are put under the influence of *x*-rays sooner, is there not good reason to hope for a still better showing?

The cases are presented for what they are worth and each one will give them whatever weight he considers they are entitled to. One important fact I believe may be claimed as established, not only from these cases but from the work of other men, namely, the *x*-rays have a destructive effect upon tissues of low vitality, and this effect can be utilized under suitable conditions to cause the destruction of such tissues without destroying the involved healthy tissue.

My sections show that *x*-rays cause a degeneration of some sort of carcinomatous tissue and a disappearance of this degenerative substance, presumably by absorption. This disappearance of carcinomatous tissue is followed by the formation of firm healthy scar tissue. A similar process presumably occurs in the disappearance of the diseased tissue in tuberculosis, sarcoma, and pseudo-leukemia. However it occurs, the fact stands that growths of embryonic tissue and other tissues of low vitality are made to disappear under the influence of *x*-rays without the destruction of the involved healthy tissue; and such a fact is pregnant with possibilities.

The advantages of the method are:

1. It is painless.
2. It destroys diseased tissue, but leaves the healthy tissue in its place.
3. It leaves small scars.
4. It can be used in cases where the surrounding healthy tissue can not be sacrificed.
5. Hence, it is available for cases in which ordinary methods involve extensive operations and serious subsequent disfigurement, as, for example, about the eye and nose.
6. It is available in cases in which ordinary methods are impossible because of the amount of destruction of tissue which complete removal would require; in other words, it is applicable to many inoperable cases.
7. It often relieves pain.

As a general proposition the use of *x*-rays should in my opinion be limited to those cases which for any reason it is inadvisable or impossible to treat by ordinary methods. In other words, until our experience with *x*-rays extends over a longer time, their use should be a reserve method of treatment. I particularly wish to make it clear that I do not advise the use of *x*-rays as a substitute for operations in operable malignant growths. As regards cutaneous carcinomas—epitheliomas—I believe no strong objection is to be found to the use of *x*-rays as a primary method of treatment and some advantages are to be urged for it. Every other malignant neoplasm should have the advantage of operation where it is practicable. On the other hand, I believe that with the present evidence of the effect of *x*-rays upon malignant neoplasms we are justified in maintaining the following propositions: 1. In all cases of malignant disease which have been operated on there is reason to urge the subsequent use of *x*-rays as a prophylactic measure. 2. In all inoperable cases of malignant disease the use of *x*-rays should be tried. 3. In all such cases there is a probability of relieving pain and a possibility of inhibiting the progress of the disease.

A BRIEF REVIEW OF FINSEN'S PHOTOTHERAPY.*

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CHICAGO.

It is now about eight years since Professor Finsen of Copenhagen published the results of his first investigations concerning the action of light upon the skin. The results of his experiments were essentially the same as those obtained by a number of other investigators, notably Widmark of Stockholm, namely, that sunburn or erythema solare is not caused by the heat of the sun, as was formerly believed, but is due to the action of the ultra-violet or so-called chemical rays.

Having convinced himself of the fact that the blue and the ultra-violet rays of light were capable of inciting an inflammation of a healthy unprotected skin, Finsen concluded that it would be of material benefit to exclude these rays in the treatment of certain inflammatory conditions of the skin, for example, variola; since in that disease suppuration and pitting are most marked upon the parts exposed to light. In summing up his papers he suggested therefore, on a purely theoretical

* Read before Chicago Medical Society, Dec. 4, 1901.

basis, that smallpox cases be treated in red light. A few months later Dr. Svendsen of Bergen, Norway, put this suggestion to a practical test and found it to be not only theoretically, but also empirically correct. This gave rise to Finsen's red light treatment for smallpox and may be considered the beginning of what has come to be known as Finsen's phototherapy.

Finsen himself seems to regard this as an incidental discovery, inasmuch as his great aim was to find the beneficial effects of the chemical rays of light. The following quotation from his article on "The Incitation of Light" can not fail to show how strongly he was convinced of this new therapeutic principle: "This chemical quality of light, which from a theoretical point of view must be placed side by side with the two other forms of energy in the sun's rays, heat and light, is undoubtedly a power of Nature (Naturkraft) which, so far, has not been sufficiently recognized in medicine."[1] The results that he has obtained with these rays, as a curative agent for lupus vulgaris and several other kinds of parasitical skin lesions, are well known. Very little, however, has been published in this country regarding the great amount of research work that has been done during the last two or three years, at Finsen's Medicinske Lysinstitut in Copenhagen. The reasons for this

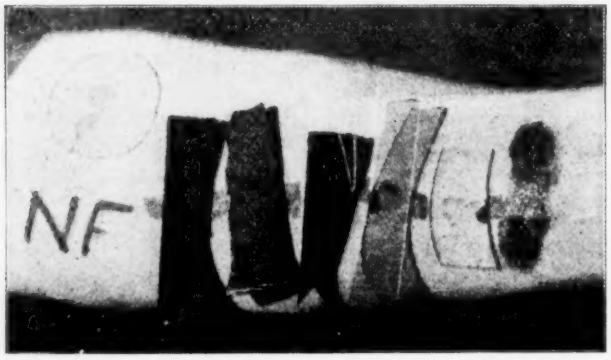


Fig. 1.—(After Finsen.) Reproduction of a photograph of Finsen's forearm before exposing it to the rays of the arc lamp. Nearest the elbow is a round piece of quartz; following this are five strips of glass. The one nearest to the quartz is red, the second yellow, the third green, the fourth blue and the fifth ordinary clear glass. Besides these are seen the letters N. F., painted with India ink, and a patch of ordinary salve nearest the wrist.

Fig. 2.—(After Finsen.) Arm after exposure. Finsen's object with the colored glass strips was to study the inflammatory effects of the different colored light on the skin. In that particular the experiment was a failure, inasmuch as no reaction took place underneath either of the glass strips, the skin remaining perfectly white. It was found on the other hand that the skin beneath the quartz plate was equally as inflamed as the uncovered skin. (The little white spot seen where the quartz was placed is due to the glue.) This convinced Finsen that the chemical rays will pass through quartz unaffected, and ever since then he has used quartz lenses for his electrical condensers.

are clearly stated by Finsen in his bulletin of June, 1900, when he says: "Inasmuch as this work has been done in a place which is outside of the great scientific centers of the world, and as the reports have originally been published in Danish, which, of course, is read by only a few outside of the Scandinavian North, it could hardly be expected that the scientific world at large would as yet be thoroughly acquainted with the details of our work and methods."[2]

In view of this fact, a brief résumé of the recent literature on Finsen's phototherapy may be of interest.

PHOTO-CHEMICAL INFLAMMATIONS.

By experiments on the skin of his own forearm, Finsen has demonstrated macroscopically how an inflammation produced by the chemical rays of light differs from that of a burn and from an erythema caused by a simple overheating of the skin. Microscopically, he has shown by experiments upon tadpoles that this photo-chemical inflammation differs from other kinds of inflammation, inasmuch as it brings about a characteristic change in the red blood corpuscles.

To describe the technique of these experiments would require a complete translation of the text. Suffice it to say, therefore, that Finsen, in the first experiment, exposed the flexor surface of his left forearm to strong sunlight for three hours (the skin being painted here and there with India ink, to imitate negro skin). In an experiment some years later he exposed the same skin, covered in part with various objects (as shown in Fig. 1) for twenty minutes to the rays of an 80-ampere electric arc-lamp at a distance of 50 to 75 cm. in such a position that the rays would strike the skin nearly at a right angle. In each case there followed an inflammatory reaction of the skin, which he describes in substance as follows:

"1. The inflammation thus incited differs from any other kind of inflammation of the same extent, inasmuch as it was followed by a marked pigmentation of the skin of several months' duration.

"2. It does not appear at once (as does a burn), but has its maximum in one or two days after exposure.

"3. It appears only on those parts of the skin which have been directly exposed to the light, while heat rays are also capable of acting through the clothing."

When the acute inflammatory reaction (of the first experiment) had subsided, Finsen again exposed the arm to strong sunlight and found that the pigmented skin reacted very faintly, while the white patches of skin, where the India ink had been, reacted just as the normal skin did before. From this he concludes that the pigment of the skin is the principal defence against the inflammatory influence of the actinic rays and goes on to say: "We are undoubtedly right in supposing that this is still the principal reason for the negro's darkness, and for the circumstance that the skin of the various races gets darker the nearer we approach the equator."[3]

Several months after the pigmentation had disappeared from the arm that had been exposed to the 80-ampere lamp, Finsen noticed, upon briskly rubbing the skin, that the parts which had been protected by the salve and glass plates (seen in Fig. 2) remained almost white, while the rest of the skin was markedly flushed. "This can only be explained by assuming that the action of the chemical rays had caused a more or less permanent dilatation of the capillaries and smaller arterioles of the skin."[4] a fact which he later takes advantage of in his chemical-light baths.

Finsen demonstrated the histology of these actinic inflammations in the following way: He took a tadpole, wrapped its body in wet tissue paper and placed it upon a microscope stage in such a way that he could

flush it with a stream of cold water, 1, to keep it alive, and 2, to counteract the heat. He then directed a stream of concentrated sunlight upon the tadpole's tail, and observed through a microscope the following changes in the capillary circulation:

"1. In about ten minutes the blood current became markedly slow and there were many leucocytes present.

"2. A little later, the blood current was completely obstructed (stasis) by red and white corpuscles and there were many leucocytes outside of the vessels.

"3. A marked change took place in the red blood corpuscles; they lost their characteristic oval shape (of the frog) and became stubby and contracted. This change in the red cells was absolutely constant in every experiment and, by fixing some of the tadpoles in saturated sublimate solution, the same condition could be observed in the cut sections. That this contraction of the red cells was not a death phenomenon was shown by the fact that they did not lose their sharp contour nor give up their hemoglobin—the two phenomena which, according to Cohnheim, take place at the death of the red blood corpuscles."[5]

THE EFFECT OF LIGHT UPON MICRO-ORGANISMS

Having determined the harmful effects of the chemical rays of light upon animal tissues, it seems but natural that Finsen should next turn his attention to the influence of these rays upon bacteria. A great deal of this work he assigned to his associates. Dr. Valdemar

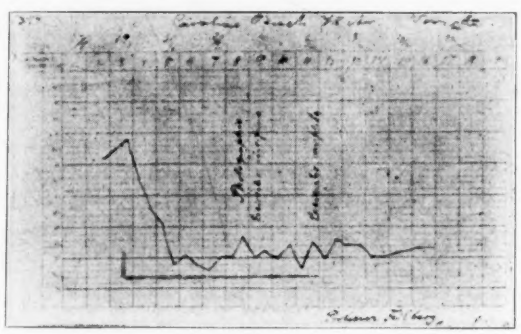


Figure 3. (After Finsen.)

Bie, his first assistant, investigated the effect of the different rays of the spectrum upon the development of bacteria and found:

"1. That all the different rays of the spectrum, from the red upwards, hamper the development of micro-organisms. That the red rays alone are capable of killing bacteria has not been shown; any of the other parts of the spectrum are able to do so.

"2. That the ability of the rays of the spectrum to kill bacteria rises somewhat uniformly with the exponent of refraction, as far as the beginning of violet, where a marked rise takes place.

"3. That the effect is therefore chiefly due to the violet and ultra-violet rays."[6]

These results have been obtained with the bacillus prodigiosus and the light of an electric arc-lamp of 35 amperes, 44 to 46 volts. The light was filtered through colored liquid filters and the technique in general was that in use at the Finsen Institute.

Dr. A. L. Larsen has made some very creditable researches in order to determine whether different micro-organisms are equally or differently affected by light. He finds: 1. That different bacteria are differently affected by light and that there is considerable difference in the resistance of even closely related varieties. 2. That the time which the light requires to kill certain species of bacteria bears no constant relation to that needed to impair their growth."

Dr. Sophus Bang, director of the Finsen laboratories, has lately published an extensive article on the effect of light upon micro-organisms. Dr. Bang states that besides the work done at the Finsen Institute, more than one hundred monographs can be found in the literature pertaining to the bactericidal powers of light, but adds that the results obtained by the different investigators do not compare with the amount of work done. He gives great credit to the work of Downes and Blunt, but has this to say in general: "One gets the impression from most of these researches that they have all been done by more or less skilful bacteriologists, but by very poor physicists."[8]

The errors of most of the former investigators have been that: "1. They have all, with one or two exceptions, used test-tubes for their cultures. (The convex surface of the tube, acting as would a convex lens, has thus caused the light to be refracted unequally throughout the media. 2. The intensity of light used, the amount of chemical rays it contained as well as the distance of the culture from the source of light (when artificial light was used) have in general not been stated

Figure 4. (After Finsen.)

by the older investigators. 3. The use of too weak light; few seem to have thought of the fact that when light is decomposed into its various parts, the source of light must be increased in order to get the same effect."

THE RED LIGHT TREATMENT OF SMALLPOX.

I have already mentioned the theory upon which this method of treatment is based. The clinical reports show that, in the hands of those who have used it rightly and most extensively, it has proved to be a new therapeutic agent of considerable value. For a successful application of the treatment, Finsen emphasizes the following points:[9]

"1. The exclusion of the actinic rays must be complete; the windows may be covered with heavy red curtains or, better still, window panes of deep-red glass may be used. At any rate the light should be of the same quality as that used in a photographer's dark room. (Red incandescent globes or a faint candle light can be used, when for convenience more light is required than can be obtained through the windows.

"2. The patient must remain in the red light until

the vesicles are dried up, even the slightest exposure to daylight can bring about suppuration and its sequelæ.

"3. The treatment should be commenced as early as possible (at the beginning of the exanthema), for the nearer the commencement of the suppuration the smaller are the chances of success.

"4. This method does not prevent the use of any other treatment that might be considered necessary. (Symptomatic treatment of the patient should, of course, be carried out as usual.)

"5. Death from variola (especially before the period of suppuration, or from such complications as pneumonia) can, of course, not be prevented by the use of this method.

"6. If the patient be brought under this method of treatment early enough and these rules observed, the results, according to clinical experience, will be that suppuration is prevented, the course of the disease shortened and the patient cured without pitting."

Dr. Svendsen, who was the first to try this method and who used it for eight cases of variola, four of which were in unvaccinated children, describes his results thus:

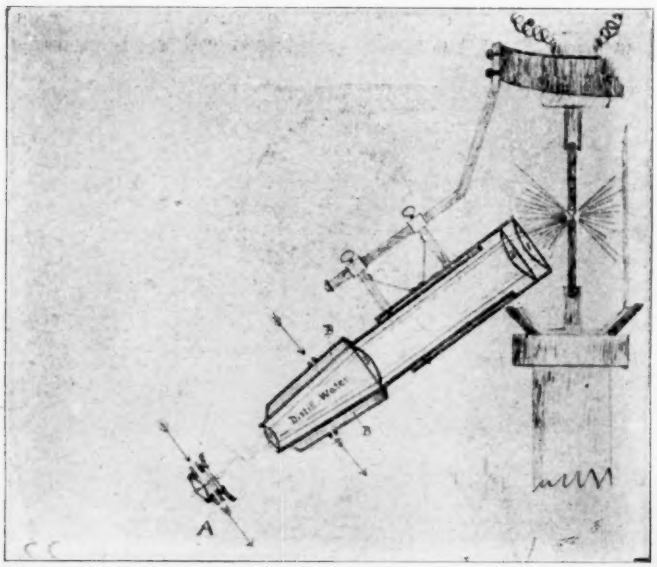


Figure 5.

"The clinical picture of variola was changed, there was no pustulation, no edema, no secondary fever; the patient passed directly from the vesicular stage into convalescence." Dr. Herman Backmann, who has treated 62 cases of smallpox by Finsen's method, says: "The period of suppuration was short and mild, the vesicles dried up much quicker than usual and left no scars."

Dr. C. Feilberg of Copenhagen has reported 14 cases of variola treated in red light at the Copenhagen smallpox hospital. He states: "It must be admitted that this method of treatment is of no insignificant therapeutic value, inasmuch as it shortens the course of the disease, makes it less painful and saves the patient from various complications consequent to the suppuration. When one has seen severe cases of smallpox—the patient bathed in pus—so that the bed clothing sticks to the body, it will be admitted that variola is one of the most painful diseases. All this seems to be avoided by the use of this method."

The exact number of cases that have been reported in the literature, as treated by this method, I am not able to state, but in 1899 between 140 and 150 cases had been reported.

Fig. 3 shows a temperature tracing of one of Professor Feilberg's cases; it will be seen from this chart that there was no secondary fever.

POWER OF THE CHEMICAL RAYS TO PENETRATE TISSUES.

That light is capable not only of penetrating the skin, but also the deeper tissues, can readily be shown by a very simple experiment suggested by Finsen. "Close the eyes and look toward the light, then cover the eyes by the hand and note the difference."[13] The amount of light that penetrates the eyelids is really remarkable, as the light has to penetrate skin, tarsal plate and mucous membrane.

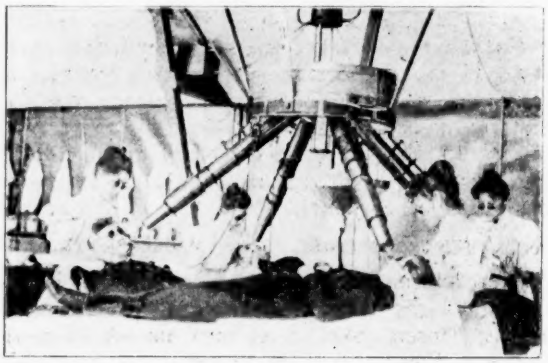


Figure 6. (After Finsen.)

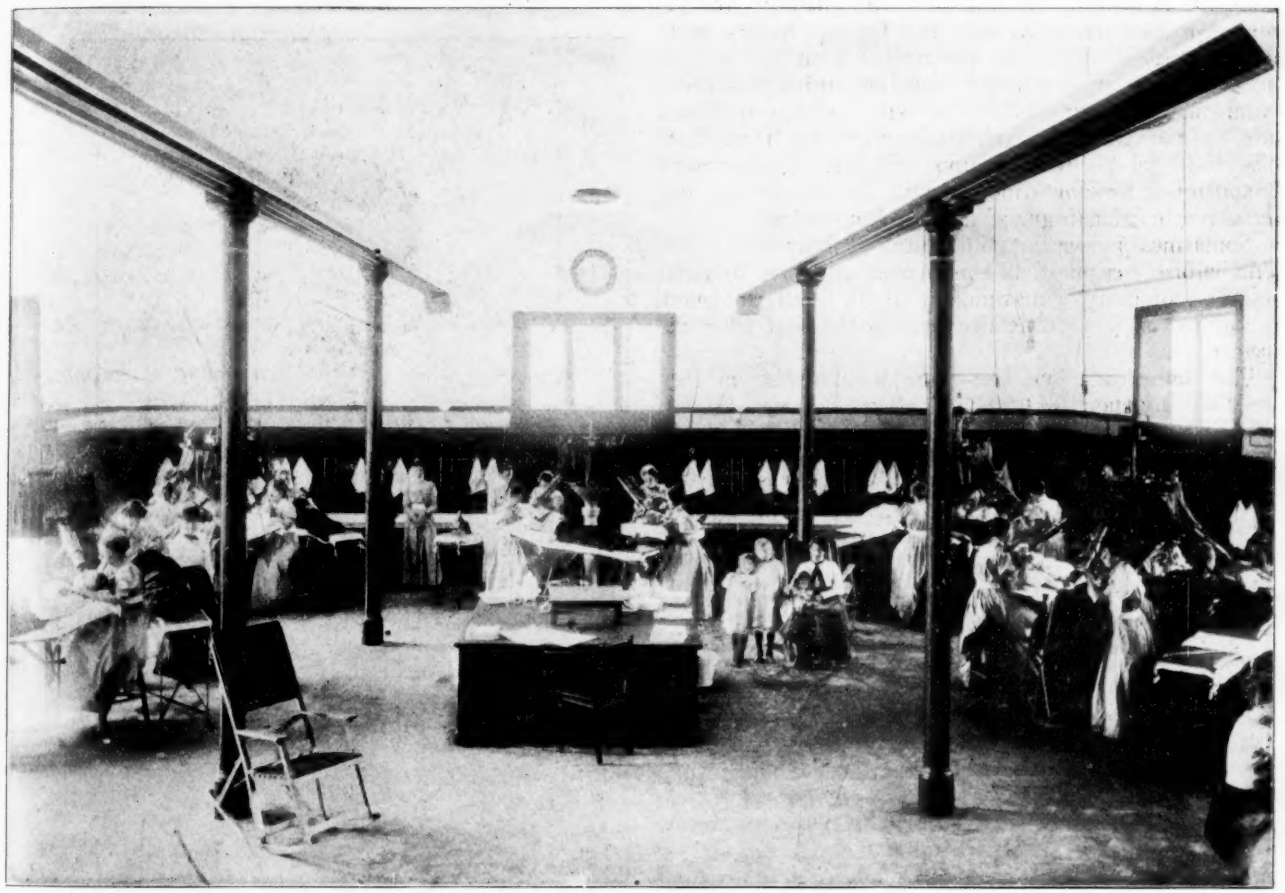
Godneff has shown that the chemical rays of light will penetrate the skin. By means of a trochar, he placed sealed glass tubes containing chlorid of silver beneath the skin of cats and dogs. Some of the animals he left in the dark, while others were exposed to direct sunlight. In the course of an hour he removed the tubes and found that the silver chlorid in the tubes from those animals he had exposed to sunlight was blackened, while it was unchanged in the tubes from those animals left in the dark. (Quoted by Finsen.)

By courtesy of Prof. Finsen.

By sealing strips of aristo paper on one side of a person's ear and then turning a stream of concentrated light upon the other side of the ear, Finsen found, from the blackening of the paper, that the chemical rays were capable of penetrating the tissues of the ear. If, however, the ear over the paper was compressed (between two plates of quartz) it was found that the same light would blacken the aristo paper in about one-tenth of the time. "This shows conclusively that the blood forms the chief barrier to the permeability of the chemical rays" (Finsen).[14] Later he repeated these experiments

by placing a rabbit's ear over a plate-culture of the bacillus prodigiosus. He found that the light would penetrate the rabbit's ear and impair the growth of the germ, while if the ear tissue was made anemic the germ was killed very rapidly.

For these reasons, Finsen uses in his lupus clinic a compressing apparatus for producing local anemia of the parts to be treated by concentrated light. This apparatus is shown in Fig. 5, A, and consists of a plano-convex lens of quartz fastened in a metal ring, the convex surface of the lens being turned toward the skin; radiating from the ring are four arms to which are attached rubber bands, that serve to hold the apparatus in position and to compress it tightly against the skin. For treating the sides of the nose, where this form of the apparatus is impracticable, an oblong form is used.



By courtesy of Prof. Finsen.

CONCENTRATION OF LIGHT FOR MEDICAL PURPOSES.

Concentrated light is used by Finsen for the treatment of various maladies, but it is for the successful treatment of lupus vulgaris that he has become known throughout the medical world.

In order that a malady may be treated successfully with concentrated light, it must be local, superficial and bacterial. This is Finsen's law in phototherapy and any skin lesion which he may have treated that does not strictly come within these three requirements is not yet beyond the experimental stage. The light used for this method of treatment must be strong, concentrated and cooled. For this purpose Finsen uses in his lupus clinic two kinds of apparatus, one for sunlight and one for electric light. The apparatus for concentrating sunlight (Fig. 4) consists of two concavo-convex glass lenses, fastened in a brass ring in such a way that the concave surfaces of the two lenses face each other, while the space between is filled with a copper sulphate solution. This blue, bi-convex, water lens is suspended on an adjustable metal frame and supported on an iron foot. The two shells of glass about the liquid converge the parallel rays of the sun to a focus, while the copper sulphate solution absorbs most of the heat rays (ultra-red, orange and yellow), but transmit the ultra-violet.

The concentrating apparatus for electric light is more complicated, since the rays from the electric arc-lamp are divergent and not parallel like the rays of the sun. Fig. 5 shows a concentrating apparatus for electric light; it consists of two brass cylinders which are made to telescope into each other, like the barrels of a microscope. In the upper end of the wider cylinder are placed two plano-convex quartz lenses, marked in the Figs. 5, 1 and 2; the object of these two lenses is to gather the divergent rays of the electric arc-lamp and make them parallel. The lenses (3 and 4) converge these same rays and bring them into focus at a point situated about 70 cm. outside of lens 4. The chamber between the lenses 3 and 4 is filled with distilled water, which absorbs nearly all the heat rays and acts thus as a cooling medium to the light. The ultra-violet rays on the other hand pass through unaffected and, since these rays have the greatest bactericidal power, it will be seen that the water serves the double purpose of holding back the heat and of giving a pure chemical light. In order to keep the column of distilled water between lenses 3 and 4 from getting hot, this part of the apparatus is sur-

rounded by a water jacket, through which a current of cold water is continually flowing. (Fig. 5, B.B.) This concentrating apparatus is held in position by a steel bar projecting from the support around the lamp, shown in Fig. 5. Lens 1 is exactly 15 cm. from the positive pole of the lamp. The apparatus hangs in such a position that its axis forms an angle of nearly 45 degrees with the direction of the carbon poles of the lamp.

TREATMENT BY CONCENTRATED LIGHT.

The patient is best placed upon a table or couch; the compressing apparatus placed over the part to be exposed and the rays from the concentrator directed straight on the compressor. It is necessary to watch and see that the rays strike the compressor at a right angle. The exposure should last from an hour and a quarter to two hours, depending upon the intensity of the light used. The electric lamps used by Finsen are from 50 to 80 amperes and four concentrators are attached to each lamp, as seen in Fig. 6. In this manner an area of skin from the size of a quarter to that of a half dollar is exposed each day until the whole patch has been treated. The skin appears red and swollen after the exposure, but necrosis has never been observed. In the case of lupus vulgaris, the treatment is continued for some time after the last nodule has disappeared in order to guard against recurrences.

Sometimes pyrogallic acid ointment is applied to the skin before treatment is commenced in order to make it soft and easily penetrable to light. Zinc ointment is applied as a soothing dressing to the part after exposure.

The statistics given below are tabulated from Finsen's official report of 1900. It shows in a general way the kinds of diseases that have been treated by concentrated light at the Finsen Institute:

NAME OF DISEASE.	PATIENTS TREATED.	RESULTS.
Lupus vulgaris	454	Positive.
Lupus erythematosus	142	Positive.
Alopecia areata	29	Positive.
Epithelioma cutaneum	17	Positive.
Acne vulgaris and acne rosacea	15	Positive.
Nevus vascularis planus	10	Positive.
Tuberculosis cutanea	7	Positive.
Trichophytia capitis	6	Positive.
Favus	2	Negative.
Seborrhea capitis	4	Negative.
Eczema faciei et sycosis	5	Negative.
Ulcera luetica	5	Negative.
Keloid	1	Negative.
Pigmenta trophica	2	Negative.

The principal advantages of this method of treatment are: 1. It is painless. 2. It promises reliable results for local, superficial and bacterial skin lesions. 3. It gives excellent cosmetic results. 4. It is absolutely without danger.

The disadvantages are: 1. The long time the patient has to be under treatment. 2. The cost of the apparatus, especially the strong electric current necessary for the lamp. The first disadvantage has practically been removed, since Dr. Sophus Bang has succeeded in constructing an electric arc-lamp, which is extremely rich in ultra-violet rays. The lamp radiates practically no heat and gives very little light; the electrodes of the lamp are made of iron, specially prepared, and are kept from melting by the circulation of cold water inside the tips. With this lamp the exposure, which used to last an hour and a quarter, is reduced to three minutes. Dr. Bang is at present trying to construct a new compressor in which a small lamp is to be inserted and in that manner do away with the cumbersome condensors.

FINSEN'S CHEMICAL LIGHT BATHS.

In the latest bulletin[1] there is given preliminary description of the chemical-light baths proposed by Finsen, in order to show how the therapeutic principle of these baths differs from that of the Kellogg electric light baths, now much in vogue in Germany. The latter are nothing more than sweat baths for which the heat is being produced by incandescent electric lamps, instead of by hot air or steam vapors. This diaphoretic effect is all the virtue the originator, Professor Kellogg, attributes to them; but after being imported into Europe (by a layman) it was found desirable to attribute to them some of the chemical effects of light. In connection with these proposed chemical qualities of the Kellogg baths the German proprietors have made use of Finsen's name in a way of which he does not approve.

The following is a translation of Finsen's description of his chemical-light baths:

My light baths are arranged in the following way: I use either sunlight or electric light.

Niels R. Finsen.

The sunbaths consist in letting the patient walk naked in a court of bright sunlight, where everything possible is done to keep the temperature down, so as not to make it a sweat bath. By frequent irrigation of the court with cold water, and, if necessary, by an occasional shower-douche on the skin, one can manage to take a sunbath at moderate temperature.

The electric-light bath consists of a circular room of about 12 meters (40 feet) in diameter, in the center of which hang two powerful electric arc lamps of 100 amperes each. The lamps are suspended about 2 meters above the floor. This large room is subdivided into smaller rooms by partitions radiating from near the center, like spokes in a wheel. In each of these subrooms is found an inclined couch on which the patient lies naked. The temperature in these electric light baths is so low that it is necessary to heat the rooms by other means to keep the patients comfortable. At the same time the chemical effects on the skin from the powerful electric

1. Meddel elser fra Finsen's Medicinske Lysinstitut, June, 1900.

light is stronger than that of bright sunlight. These baths produce a pleasant prickling and slight sensation of heat on the skin.

In the use of these baths, as well as the sun baths, it is necessary to exercise a certain amount of care, inasmuch as there is a great individual difference of toleration to the chemical rays of light. Certain individuals will, even after a 10-minute exposure, present a decided erythema, while others tolerate the same light for hours, their skin presenting nothing more than a slight redness. The indications for these baths and a further description of them I shall not enter upon now, as it is merely my intention to point out the difference between the kind of electric baths, which in reality are nothing more than sweat baths, and the kind of electric light baths, the object of which is a real chemical-light action.

While Finsen as yet refrains from giving any specific indications for these baths he calls attention to the fact, mentioned under photo-chemical inflammations, that the chemical rays produce a dilatation of the capillaries of the skin. "This dilatation of the capillaries insures a greater blood supply and in consequence a better nourishment of the skin." It has also been shown that the chemical rays are powerful counter-irritants; and inasmuch as we treat many chronic skin diseases with stimulating salves, etc., it would be hard to foretell the future therapeutic uses of these chemical-light baths.

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THE USE AND ABUSE OF MORPHIN AFTER ABDOMINAL SECTION.

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There seems to be a wide divergence of opinion among English and American surgeons as to the benefits of the administration of morphin and other preparations of opium after an abdominal section, if we take the expressions found in medical journals as a guide to the views and customs of operators. The questions we propose to briefly discuss in this paper are: What are the indications for and benefits derived from the use of morphin after abdominal section? What are the harmful influences of this drug when improperly used?

Unquestionably, pain is considered the chief indication for its use after an abdominal section. It is here, however, that the great divergence of opinion regarding the advisability of its administration is manifest. The early operators almost invariably administered a large dose of opium as soon as the patient was placed in bed or had recovered from the effects of the anesthetic.

The form of this drug was usually laudanum and the method of administration by the rectum. The first dose was followed by others as soon as the patient began to complain of pain. At the present time it seems to be the consensus of opinion among most operators that some form of opium should be given where the pain is very intense. Of late codein has come into general use and is given hypodermically or by suppositories. The advantages of this drug are that it does not constipate and is not liable to be followed by vomiting. It is, however, transient in its effects, so that it must be repeated, and even then it is of little value for relief of pain except in the mildest cases. The writer in his practice has endeavored to substitute codein for morphin, but has found it of little value. The administration of one grain of codein hypodermically will modify the pain and will give comfort and rest for one or two hours, but not longer. So little benefit have I derived from its administration that I have almost abandoned its use for the relief of pain. There are those, and they are not a few, who condemn the use of morphin in toto after abdominal section.

Some two or three years ago the writer listened to a paper read by a prominent operator who condemned the use of morphin in the strongest terms. Some one asked him what he would give to relieve pain if it were severe, and his reply was, "nothing," that he would encourage the patient to bear the pain; in the discussion which followed his paper, he remarked to his interrogator: "If you would avoid the use of opium in any form, your mortality would be reduced 5 per cent." These statements were very positive and yet seemed to meet with the approval of many of the operators who listened to him. The last statement we think, however, was far from the fact, as the recorded experience of some of our most successful operators show. They have attained their very low rate of mortality while using this drug.

I cite but one instance, that of Mr. Tait in his prize essay upon diseases of the ovaries. He states that he had just completed a series of 100 consecutive ovariotomies with but two deaths, and a little further in the same chapter he says: "Should there be pain after the operation, I direct the use of a suppository containing one-fourth grain of morphia; but with this agent I am extremely cautious, for my patients never get a single dose of morphia or opium more than is absolutely necessary to relieve pain. Like other operators, I have long since discarded the routine use of opium, which was the fashion at one time, a practice brought into existence by the idea that it prevented the occurrence of peritonitis." Undoubtedly, Mr. Tait in these statements has given us the key to the rational employment of this most efficient drug.

Dudley,[1] in his recent work, has cogently stated the objections to morphin and opium in the following language: "Opium and its preparations lock up the secretions, induce nausea, arrest peristalsis, cause distension, mask other symptoms which might otherwise give warning of approaching danger; they moreover counteract the influence of cathartics and would therefore prove a serious obstacle if it became necessary to move the bowels. Such drugs, if given at all, should be given with the greatest circumspection."

The writer is in accord with facts and principles stated in this quotation. Let us, however, consider their objections somewhat in detail to see if they may not be counteracted.

The first is it locks up the secretions. Under the old methods of preparatory treatment, when water was withheld and the patient actively purged by salines, the dimi-

1. Dudley: Diseases of Women, p. 137.

nution in the amount of urine, the dryness of the skin and costive condition of the bowels were very noticeable and very distressing. Now, that copious draughts of water are given several days in advance of operation and a large enema of normal salt solution given immediately after the operation, these objections are largely removed.

That many patients suffer of nausea and vomiting as the effect of an injection of morphin, there can be no question. I know of no way of effectually preventing this most unpleasant and often serious after-effect of the drug, but since I adopted the plan of questioning the patient regarding the effects of the drug upon former occasions of its use and avoided giving it to those whom it invariably nauseates, I have had much less annoyance from this source. The administration of morphin combined with atropin soon after section is usually objectionable on account of the excitement of the heart's action and the dryness of the tongue and throat the atropin induces. A second minute dose of morphia as the nausea begins is not infrequently effectual in preventing this symptom.

Morphin does arrest peristalsis, cause distension and counteract to some extent the action of cathartics. However, these objectionable features may be largely counteracted by the administration of a rectal injection of normal salt solution after the operation and by the subsequent rectal injection of milk of asafetida, and by the systemic yet prudent use of the colon tube.

The early action of the bowels is conducive to a quick recovery of the patient. It has long been the practice of the writer to secure an action of the bowels within the first forty-eight hours. This is accomplished sometimes by an S.S. enema, at other times by an enema of four ounces of the saturated solution of Epsom salts, to which has been added one ounce of glycerin or lastly, in case of failure of the above-mentioned measures, by the administration of small doses of calomel followed by a saline.

In cases of extreme restlessness the efficiency of an opiate is most marked. Every abdominal surgeon has seen many marked illustrations of this fact. One recently under my observation was most striking. The patient, a school teacher 43 years of age, was operated upon by vaginal hysterectomy for the extirpation of a fibroid uterus, pus tubes and a small ovarian abscess. The operation was not difficult and was quickly done by the ligature method. The patient was one of those extremely nervous persons who are intolerant of pain or restraint of any kind. She was loud in her complaint of pain and so restless that it was difficult to keep her in bed. Two one-grain doses of codein were given and also one rectal injection of hot water containing 20 grains of sodium bromid and 15 grains of chloral hydrate, all with little or no effect. The administration of one-sixth of a grain of morphin quickly brought relief and quiet, calm sleep. It was not followed by an unpleasant symptom. The whole aspect of the case was changed and the patient went on to a speedy and comfortable recovery.

Persistent vomiting, not due to peritonitis or obstruction of the bowels, but of reflex origin, is not infrequently relieved by the administration of one-eighth grain of morphin.

The place of morphin in the treatment of post-operative peritonitis is far from being settled. My own experience leads me to avoid its administration except in rare cases, such, for instance, as those in which the bowels have acted freely and in which there is no vomiting, yet there is great restlessness and pain. Even in such cases it is so apt to induce vomiting that it should be prescribed with the greatest circumspection. In sepsis all are agreed that morphin is harmful.

The chief etiological factors of post-operative peritonitis are trauma and infection. Recognizing this the surgeon is prone to become dogmatic and absolutely proscribe the drug. Unquestionably, not a few valuable lives have been sacrificed because the attendant or nurse would not heed his dogmatic statement.

There is another condition concerning which I would speak of the use of morphin, viz., in those individuals who are addicted to the use of the drug. The terrible depression, great restlessness and acute pain caused by withholding morphin from such persons, added to the shock and other dangers of the operation, may be the determining cause in producing a fatal issue. Immediately following an abdominal section is not the time or occasion to break the morphin habit. It is, however, an appropriate time to begin diminishing the accustomed dose, so that a little later it may be entirely withdrawn.

In secondary shock occurring one, two or three days subsequent to the operation and due to fright or over-anxiety and accompanied by great restlessness, the administration of a small dose of morphin is often followed by a calm sleep and entire relief of the patient. I am aware that there are those who deny the presence of secondary shock and who teach that so-called secondary shock is a condition due to secondary hemorrhage. I wish to cite one of my cases illustrating my idea of secondary shock. Mrs. A. was operated upon in a private hospital by abdominal section for the extirpation of a small pyosalpinx. The operation was an easy one, the patient reacting well. Everything went on in a normal manner for thirty-six hours, when a patient who had undergone a severe operation, was placed in a bed across the hall from her. The newly arrived patient suffered intensely and was boisterous, crying out in agony that she was dying. My patient heard her every moan and outcry, became frightened and much agitated. Her temperature fell, her pulse became rapid, her skin blanched and respiration sighing.

This is the condition I found her in half an hour after the serious symptoms appeared. She was moaning and turning in bed and begging piteously for her friends, whom she wished to see before she died. For a little while I halted between two opinions, now thinking it was shock and now secondary hemorrhage. We applied heat and friction to the surface, and gave stimulants hypodermically. In a short time a bright spot appeared upon one cheek and one ear became livid. It was plain to my mind we had to deal with shock. I directed a large high enema of hot water and the administration of one-eighth grain of morphin. I sat down quietly by her bedside and assured her that she would soon be better and would recover. In a few minutes her restlessness gradually disappeared. She became calm, then drowsy and finally slept. The sleep lasted for an hour. During that sleep the surface of the body warmed and the color returned. She awoke at the end of an hour refreshed, and at the end of four or five hours every evidence of shock had disappeared except that she was fatigued. Morphin played an important part in the restoration of this patient. I wish to briefly summarize as follows:

1. The routine use of morphin and other preparations of opium are to be condemned.

2. For the relief of severe pain and marked restlessness morphin is much superior to codein, though more prone to be followed by unpleasant symptoms such as nausea, vomiting, diminished secretions and constipation of the bowels.

3. The serious after-effects of morphin may be largely overcome by the drinking of liberal quantities of water before the operation and the rectal injection of a pint or quart of the normal salt solution immediately after the operation, the systematic use of the colon tube and the early action of the bowels.

4. In persistent vomiting not due to sepsis or peritonitis, small doses of morphin hypodermically not infrequently affords relief.

5. In secondary shock due to fright or overanxiety morphin in small doses is often a potent remedy.

SOME POINTS IN THE DIFFERENTIAL DIAGNOSIS OF ABDOMINAL AND PELVIC TUMORS.*

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To men who devote their lives to this special work this is a difficult problem. Even in the hands of such men positive diagnosis is not always possible before the abdomen is opened, and not always then until the tumor has been examined under the microscope. It is only fair to make this statement in the beginning as a reason for not drawing the differentiating lines very acutely. We must bear in mind that there may be exceptions to the usual rule in many of the symptoms in any given case. He who takes written notes and keeps a record of his cases for future reference will be doubly repaid for his time in his future work. No better method of informing oneself in this line of work can be suggested than the careful note-taking of every case that passes under observation.

In studying the differential diagnosis of abdominal and pelvic neoplasms it is essential to keep in mind the normal anatomy of the regions involved. The history of the case, showing where the tumor was first noticed or the pain first felt, will often aid us in our diagnosis as to the nature of the disease. If, from the clinical history, we can learn that the tumor was first observed, when quite small, in the region of the gall-bladder, it would give us a suggestion for a provisional diagnosis. Often the early location of the tumor was the normal location of the healthy organ from which the tumor developed, and a knowledge of its relations is of great clinical importance.

Certain methods of examination are essential and the physician who uses them systematically is not nearly so likely to be misled as one who does not do so. The methods are inspection, palpation, percussion, mensuration, auscultation and exploratory puncture. For examination the patient should be placed upon the back on a smooth, level surface, a high table or a smooth, hard bed. The head should be slightly elevated. The clothing should be removed and the patient protected by a suitable covering.

For inspection the abdomen should be entirely exposed to view. The position of the body, the general appearance of the abdomen, the location of the tumor and its outlines, should be carefully noted.

During palpation as during inspection, the patient should be on the back. The patient's knees should be slightly elevated, resting upon a pillow. The physician should attract the patient's attention by ordinary conversation, about something not pertaining to the disease, if possible. It is important not to cause the patient pain by rough manipulation. The parts should be manipulated carefully and gently, absolutely no force being used, otherwise the object is frustrated. The physician should not overlook the simple precaution of having his hands as warm as the patient's body. This is only a little thing, but it is the aggregation of little things in our profession that makes the difference between success and failure. By palpation we may detect cancer of the pylorus or pancreas, floating kidney, abdominal aneurysm, mesenteric and omental or peritoneal growths, small ovarian and uterine tumors, with almost as much certainty as we make a diagnosis in pneumonia. We must not give an opinion, though, at this time, for we want to be as certain as it is possible for man to be before we risk one. The sensation of the patient as to pain and the degree of spasm of the abdominal muscles will give some definite idea of the local inflammation present and of the character of the tumor. The appearance and manner of the patient will tell us whether the pain is hyperesthesia, hysteria or real pain. Note particularly if one portion of the abdomen is more sensitive than another. Try to determine whether the tumor contains fluid or is solid. After gaining all the facts that are possible in this position, the patient should be turned on the side, with the knees flexed. This may reveal entirely new symptoms that could not be elicited with the patient on the back. For instance, floating kidney can always be palpated in this position when it would entirely elude us with the patient on the back. Then, with the combined vaginal, abdominal and recto-abdominal examination, new facts may be gained. These will give us clews to our diagnosis which we can work out to a reasonable certainty in a few moments afterwards.

For percussion the patient is again placed on the back, with the abdominal muscles relaxed. The whole abdomen and flanks should be carefully gone over and every abnormality and dull region noted and marked out on the patient's skin with a pencil of soft lead. When this has been done the patient should be changed first to one side and then to the other and the whole region gone over again. Abnormal conditions should be carefully noted in the changed positions, especially if the abnormality changes its position. Deep and superficial percussion should be carried out carefully, as much valuable information can be gained thereby. Rest the left hand upon the abdomen, using each finger as a pleximeter. Spread the thumb and fingers, allowing one or two fingers to extend over the edge of the supposed growth and the rest beyond it. Carefully percuss each one in turn without moving the hand, and note the different sounds. This will often give positive knowledge of dulness where the ordinary mode of percussion would not. We can readily determine the borders of the supposed tumor and whether it is solid, fluid or gaseous.

Auscultation is not so valuable an adjunct as the preceding methods, but it has its place. This is especially true in supposed intestinal obstruction. We can trace peristalsis of the intestine which is always present in that condition. In not a few instances it will save the physician the chagrin of pronouncing a normal pregnancy an abdominal neoplasm, or confounding an aneurysm with other forms of tumors.

Many good men recommend exploratory puncture or tapping, but the more I see and do of this work the more I am convinced it is rarely necessary or advisable to tap, and that it is not devoid of danger. Men who operate often do not advise aspiration as a means of differential diagnosis in abdominal and pelvic tumors. The reason is logical and just. If a tumor causes enough

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trouble to demand relief and a differential diagnosis can not be made, we had better not add the risk of an accident following tapping, but reserve our opinion until operation has been made.

DIFFERENTIAL DIAGNOSIS OF OVARIAN CYST.

As an illustration of the methods to be employed we will consider the differential diagnosis of an ovarian cyst of moderate size—say somewhat smaller than an adult head. The clinical history is of great importance. Menstruation is not changed in type in any way. The patient complains of a little pelvic discomfort. The tumor is of but few months' duration or perhaps has but just been discovered. The patient is not ill, but alarmed at the discovery of the lump and seeks advice. First note the appearance of the abdomen, whether or not the tumor is more prominent on one side than on the other. Ovarian tumors of this size are rarely ever central. The measurement from one anterior spine of the ilium to the umbilicus is greater on one side by half an inch to an inch than on the other. This much variation is scarcely perceptible to the eye. Tumors occupying exactly the center of the abdomen are usually uterine. Palpation reveals a round, usuaully smooth, semi-elastic tumor, almost always fluctuating. If very thin-walled, fluctuation will be very perceptible, but if the fluid is very thick and tenacious, the sense of fluctuation is correspondingly lessened. Percussion reveals dulness over the entire tumor. Changing the position of the patient will not change the area of dulness.

From Pregnancy.—Then come the fine points of differential diagnosis between ovarian tumors and the other forms of tumor that develop in the pelvis and abdomen. The first to be excluded is pregnancy. It is a well-known fact that unmarried women who find themselves pregnant will make misleading statements to their physicians and resort to the meanest subterfuges in order to mislead their families. When the physical signs and condition of the tumor in an unmarried woman suggest the possibility of pregnancy, we must be on our guard, regardless of her statements, and carry our examination to the minutest detail in every particular. By vaginal examination I have been able time and again to convince myself immediately that the patient had been purposely misleading me by her statements and that the tumor was a pregnant uterus. I will say in passing that nearly all the mistakes of my professional friends who have referred cases of this kind to me have come about because they have not made a vaginal examination, either because the patient objected or they thought it was not necessary. A man who has practiced obstetrics a few years can not be easily deceived when the woman is pregnant if he makes a vaginal examination. There will be the usual physiologic changes in the vagina and neck of the uterus. The cervix will not be firm and hard as in a non-pregnant uterus. The speculum will reveal the parts engorged with blood. The vaginal mucosa will have the bluish tinge rarely present at other times than pregnancy. The normal-sized uterine body can not be mapped out, as it is always possible to do if the tumor is ovarian. From external appearance of the abdomen the bulging forward low down is not so marked in ovarian cysts as in pregnancy. Auscultation may reveal the fetal heart sound, and by a little manipulation we may be able to get the fetal movement as well as ballottement with rhythmical contraction of the uterus. If so, everything in the heretofore obscure case is perfectly plain.

From Fibroid.—Having excluded pregnancy in our differential diagnosis, the fact of a tumor present still remains. If the tumor is the uterus itself enlarged, it will not be difficult to map it out by bimanual examination. If it is a fibroid, we will have a hard mass that may be smooth or irregular in outline, non-fluctuating, and with a history of a slow growth. As a rule the patient will have been conscious of the presence of the tumor for many months and usually many years. She has had well-marked menstrual derangement preceding her observation of the tumor. This derangement usually consists of prolonged and excessive bleeding accompanied by more or less pain. It is the first thing that attracts the patient's attention. Many patients bleed from ten to fourteen days at each period. Sometimes the fibroid develops in one wall of the uterus and remains interstitial growth. The uterine cavity enlarges. Not a few of these cases bleed excessively at each period for two or three years, then the period gradually assumes its normal condition, the uterine body contracts to its natural size and the tumor increases in size. The patient will remain quite comfortable until the tumor is large enough to cause inconvenience from pressure. With this clinical history the physician may doubt the correctness of his former diagnosis. Examination will then reveal the tumor subperitoneal, the uterine body of almost natural size and attached to one side of the tumor. This is because the tumor in its early history was located nearer the peritoneal covering than to the mucosa. The uterine contraction forced it out of the grasp of the uterine muscle. The gradual contraction of the uterus controlled the bleeding. If located near the mucosa in the early history of the growth, this same contraction of the uterine body forces the tumor into the uterine cavity and thus we have the true uterine polyp. With these conditions present and a definite knowledge of the clinical history, one should have little difficulty in making a diagnosis.

From Dropsy.—One of the most difficult conditions to differentiate is the encysted dropsy of tuberculosis. By percussion the same signs are present as in ovarian cysts. Changing the position of the patient does not change the area of dulness any more than in ovarian cyst. By palpation the apparent tumor is not so easily defined in encysted dropsy. In ovarian cyst the upper edge ends abruptly. In encysted dropsy the adherent omentum and bowel prevent our making out a sharp boundary line of demarcation. When the patient is on her back the tumor itself is not quite so prominent. The abdomen rather flattens out as it does in ascites. We must place our chief dependence upon a careful clinical history, in many cases especially for the year or two preceding the time of examination. The general health will usually have been poor, with progressive weakness and emaciation; yet this is not always true. There is always more menstrual derangement in tuberculosis than in ovarian cyst of small size. Usually the flow is either profuse and prolonged or scanty. The general appearance of the patient is that of a sick woman out of all proportion to what we would expect if the tumor were an ovarian cyst. The pulse is always accelerated. The temperature chart will also be an aid, but we must be careful on that account not to confound encysted dropsy with a suppurating cyst. As a rule there will be found other manifestations of tuberculosis.

There should be little or no difficulty in making a correct diagnosis of uncomplicated peritoneal dropsy. The clinical history will give some clew as to organic disease of the kidneys, heart or liver. The edematous feet and limbs will at once attract our attention. With the pa-

tient on her back percussion will reveal the resonant area in front, a dulness in either flank; changing the position to the side, we will have the resonance changed to the uppermost side and the dulness below, on account of the gravitation of the fluid. By bimanual examination the uterus and ovaries will be found perfectly movable and normal.

If we have the complicated condition of the pelvic tumor with abdominal dropsy it may be very difficult to make a correct diagnosis. We frequently have peritoneal dropsy directly due to the irritation of the tumor, especially if the tumor is malignant. In this condition the physician may mistake the distended abdomen for a large ovarian cyst when the real condition is a small pelvic tumor and peritoneal dropsy, with the intestine adherent to the tumor and pelvic floor in such a manner that they can not float up on the fluid. A careful physical examination will correct this mistake.

SPECIAL TUMORS.

Malignant tumors in the pelvis are, as a rule, not difficult to diagnose. There is more or less emaciation and loss of strength. The tumor grows very rapidly and there is a tendency to include the adjacent organs until finally all the organs in the pelvis are fixed. As the disease advances pain is greatly in excess of that of non-malignant growths.

A large suppurating ovary may be mistaken for an inflamed ovarian cyst or a fibroid uterus. As a rule it will not be difficult to make a correct diagnosis if the clinical history is carefully taken. Illness will have extended over a number of years. There will be deranged menstrual function with more or less pelvic pain all the time. The tumor will be more fixed in the pelvis than a fibroid. It is not always possible to get fluctuation in a suppurating ovary the size of a cocoanut, but it is always possible to outline the uterine body, not much enlarged, on one or the other side. The tumor simulates a fibroid inasmuch as the patient bleeds from six to fourteen days at her menstrual period. I have had these cases referred to me many times for fibroid. By vaginal examination the parts are more sensitive and more fixed than is usual in fibroids. In the majority of these cases there is nothing in the temperature chart that would throw any light upon the diagnosis.

Ruptured tubal pregnancy with a large accumulation of blood clot, seen several weeks after primary rupture, may be confusing. Here again the clinical history plays a very important part in the diagnosis. The patient has a previous history of endometritis or salpingitis or both. She has suffered with deranged menstrual function for many months or years. She has missed one, two or possibly three periods and believed herself pregnant. Her illness was ushered in by a sudden, sharp attack of pain in the abdomen, followed by well-recognized symptoms of shock lasting from a half hour to three or four hours. If pregnant not more than seven to nine weeks, she is able to leave her bed the following day and continue her usual vocations. In three or four weeks she has another attack of pain and collapse, when renewed hemorrhage takes place. She is again able to leave her bed in a few days and only complains of a sore abdomen. This may be repeated three or four times before the patient comes under the observation of the consultant. The pelvis and lower abdomen is now filled with old blood clot, forming an apparent tumor. In a number of similar cases I have suggested to the medical attendant that the tumor was blood clot from a ruptured tubal pregnancy. He would reply in a somewhat quizzical tone, "Why, Doctor, that can not be so. If the woman had a ruptured tubal pregnancy she would have bled to death at once." The fact is, ruptured tubal pregnancy rarely causes death from hemorrhage at the time of the first rupture. If it did, we would rarely see these cases on the operating table. The longer the duration of pregnancy before rupture takes place, the greater the danger of the patient dying from hemorrhage at the time of the first rupture.

The above conditions are more likely to be confounded with each other than any of the remaining diseases, yet many of the other conditions require careful consideration.

Appendicitis.—I will only speak of appendicitis with a large accumulation of pus. It ought not to be difficult to diagnose this condition from other abdominal and pelvic tumors. Embarrassing mistakes have been made, however, on more than one occasion by prominent men. The clinical history, the condition present, the fixed condition of the mass, contrast so markedly with other abdominal growths that one can hardly realize how it could be confounded with anything else. It is usually confused with a suppurating ovary on the right side or a right kidney with pyonephrosis. In a kidney tumor the colon is always in front. This can be easily demonstrated by inflating the colon with air. A few compressions of the bulb of an ordinary Davidson syringe, pumping in air in place of water, will make it easily apparent. We can then outline the colon by percussion, perfectly. Carefully analyze the urine for blood and pus. There would probably be a history of attacks of nephritic colic. This would be true of hydro- or pyo-nephrosis. A floating kidney with twists in the ureter would have a history of sudden attacks of pain. In new growths we are not nearly so likely to have the attacks of pain, but there is one symptom of importance, that is, blood in the urine. Not infrequently in malignant disease of the kidney there is nothing abnormal in the urine either microscopically or chemically. The tumor, if it is a kidney, begins to develop too high up for appendicitis. In appendicitis we have the McBurney point, with rigidity of muscles at the commencement of the illness, rise of temperature, marked constipation and abdominal distension. The illness is ushered in with a sharp attack of pain. The tumor, at first barely perceptible, at the end of twelve or fourteen days is the size of a pint cup or larger, extending from the ilium towards the median line. It rarely extends far enough toward the region of the kidney to be mistaken for a kidney. The patient lies upon the back, the leg of the affected side flexed, with more or less inability to extend it without pain. Upon examination we do not find the tumor occupying the pelvis to such a marked degree as in a suppurating ovary. Besides, in the latter disease, we have the history of uterine and pelvic disease preceding the present illness.

Enlargement of the liver with distended gall-bladder should not be difficult to diagnose, yet mistakes occur in the hands of very distinguished surgeons. We may and do have distended gall-bladder from obstruction of the cystic or common duct from various causes. Two of the most common are gallstones and malignant disease. To differentiate which is the cause of the distended gall-bladder, and consequently the enlarged liver, is a most difficult problem and one that can not always be solved before operation. If we have obstruction of the common duct, of course we have jaundice with all its ills. If we will recall the fact that we rarely have gallstones forced

into the common duct as the first indication of their presence, it will give us a clue for provisional diagnosis. In malignant disease about the head of the pancreas and involving the common duct, about the first symptom to attract attention is the slow development of jaundice. There has been a general indisposition of the patient for a few weeks preceding. At the first examination we might and probably would find a distended gall-bladder. On the other hand, if we have a history extending over months or years we have presumptive evidence that the disease is not cancer but gallstones. There will have been sudden, short attacks of pain located exactly in the median line under the ensiform cartilage and not over the gall-bladder. These attacks will be associated with indigestion and followed by a distended gall-bladder, with or without jaundice. I have observed for many years that in the early clinical history of gallstones, that is, before there is a distended gall-bladder or jaundice, the patient always refers the seat of pain to the region of the stomach. They are usually treated for neuralgia, gastralgia, indigestion, etc., before the real condition is recognized. If the distended gall-bladder is of long standing, the liver will be more or less enlarged. If a stone has been forced into the common duct there will be marked jaundice. If the case is a neglected one of long standing, we may have the two conditions present, gallstones and cancer. It is a well-known fact that in many of these cases permitted to die unrelieved, autopsy reveals cancer involving the ducts, as the immediate cause of death. The causative relation between the long continued irritation of gallstones and cancer of the gall ducts, I will not discuss. I referred to this at some length in a previous paper many years ago. It was not generally accepted at that time, but it is now the accepted doctrine of the profession.

A fecal accumulation in an exceedingly fat abdomen may be confusing for a time only. A little careful investigation will soon settle the diagnosis. These accumulations become very large, frequently nearly if not quite as large as an adult head. Manipulation reveals the fact that you can make indentations with your fingers. In this condition the patient is not always constipated. On the contrary there may be diarrhea. A few doses of salts and high rectal injections of ox-gall will soon solve the problem. These accumulations are usually found in old women of marked sedentary habits and habitual constipation until the present illness. With this clinical history one ought to have little difficulty in forming a correct opinion.

Phantom tumors have been a source of annoyance to young practitioners, and not a few old practitioners have made blunders and pronounced phantoms real abdominal tumors. They simulate an ovarian tumor in appearance and clinical history. But we must not take anything for granted in making our diagnosis in abdominal tumors. This condition emphasizes the fact that superficial appearances may lead us to very wrong conclusions. Percussion in a phantom tumor reveals resonance over the entire supposed tumor. This is not true in ovarian tumors. It is rare indeed for ovarian tumors to contain gas. Phantom tumors always contain gas, for it is a gaseous distension of the intestinal canal that makes the apparent tumor.

After using every other means for diagnosis, if not satisfied, give the patient an anesthetic. If the tumor is phantom it will entirely disappear after the patient is thoroughly anesthetized.

In every condition mentioned in this paper we have seen errors in diagnosis many times, because the physician did not employ every means at his command to aid him.

I would say in closing, one of the best rules to adopt in making a diagnosis is to give an anesthetic in every doubtful case before expressing an opinion. Under anesthesia you have the patient and the tumor just as they are. Relaxation of the muscles gives you a much better idea of the condition present than you could possibly get otherwise. I do not hesitate to give an anesthetic to confirm my diagnosis, and I would urge you to do so whenever you are in doubt. It often dispels all doubt at once, and converts the heretofore obscure and difficult case into one that is perfectly easy and plain.

THE BACILLUS COLI COMMUNIS IN HUMAN INFECTIONS.

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INTRODUCTION.

The conception of the bacillus coli communis* as a pathogenic factor in disease begins with its earliest history; and the suspicion at first entertained of a possible relationship to certain human infections has been confirmed from many sources. But with the early development of the idea of pathogenic significance the organism was given undue prominence in disease. Whilst its association with a multitude of lesions as different in distribution as they are varied in character is now clearly established, the closer studies of the last few years indicate that its inciting part is certainly one of less independence than many writers are disposed to admit.

Recent investigations which have enlisted more exact and more comprehensive methods of technique reveal in the lesions in which the colon bacillus is so commonly found, other micro-organisms, especially pyogenic cocci, and sometimes bacteria of the anaërobic class[1] whose primary importance is more clearly established. For the most part, the rôle of the bacillus coli communis is a relatively insignificant one as a primary factor in human infections. It is as an invader of territory already *hors de combat* or previously occupied by bacteria that it ordinarily claims our chief attention.

DISTRIBUTION.

The colon bacillus appears to be almost ubiquitous in distribution. The idea once held that it belonged exclusively to the alimentary canal of man and animals is now discarded. It is one of the most widely distributed micro-organisms in nature, having been found in water, air, the surface and depth of the soil, milk, etc. This wide prevalence of the organism under these conditions is, however, quite subsidiary to its presence in man and animals. It is certainly one of the most frequent of the bacteria encountered in the natural cavities of man and animals.† In the putrefaction of cadavers it has been attributed a conspicuous rôle by Malvoz[2]; and Gordon[3] concluded that it has a similar activity in vegetable decomposition.

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* The distinctions which have recently come into importance between the several varieties of the "colon group" are not maintained in this paper; within certain limitations bacillus coli communis usually refers to the type form.

† For an account of its distribution in animals, consult the article of Flint, JOUR. A. M. A., 1896, vol. xxvi, p. 410. Levin, in Annales de l'Institut Pasteur, 1899, p. 558, has also shown its occasional presence in the intestine of the polar bear and seal; for the most part the intestinal discharges of animals in the Arctic regions were, however, found sterile by this observer.

Distribution in Human Body During Life.—The investigations of Escherich,[4] since confirmed by the more elaborate studies of Schild,[5] Szego[6] and others have shown that the intestinal contents of infants remain sterile for some time after birth, the period apparently depending upon the time at which the earliest nourishment is given. Under ordinary conditions of life bacteria make their appearance shortly after birth in all parts of the digestive tract. In many animals the bacillus coli communis, or its near allies, seem to be, as in man, the chief obligatory forms. Whether the microorganisms enter by the mouth or the anus, and if by the former whether through swallowed air, in water taken at the first bath, or with the infant's first nourishment still remains a subject of conjecture. But although the bacterial flora of the intestine is subject to variations according to the kind of food ingested Lembke[7] has shown that the bacillus coli communis on the whole alone remains constant and independent of diet. Just why it persists as the peculiar denizen of the bowel in most animals is as difficult of explanation as is the source of its early appearance in the infant's intestine. The relative numbers of bacillus coli communis in different portions of the alimentary canal have been variously estimated. The observations of Gilbert and Dominici[8] and those of Cushing and Livingood[9] indicate that there is a gradual rise in the number from the duodenum to the ileocecal valve, at which situation the maximum is noted. When the large bowel is reached there is a marked diminution in the number. Since the establishment of its existence in the normal intestine the frequent presence of this micro-organism in the mouth as a saprophyte has been shown by Vignal[10] and Grimbert and Choquet.[11] As would naturally be expected, it has often been found on the skin, particularly in the neighborhood of the anus, in the vagina, anterior urethra, etc., existing as a harmless invader.

It has been urged by Desonbry and Porcher,[12] and by Nocard,[13] but more especially by Adami[14] and Ford[15] that bacteria not alone reach the deeper structures of the intestine under what appear to be normal conditions, but commonly invade the blood of the portal circulation, and liver and kidneys during life. The phenomenon occurs through the intermediation of the leucocytic emigration which occurs with especial prominence during digestion back and forth through the mucosa to the free surface of the alimentary tract. These leucocytes, while in part undergoing a destruction, in part find their way between the epithelial cells, carrying with them foodstuffs and solid particles, among which may be the bacteria present in the cavity of the gut. Many of the bacteria finding their way into the lymphatic channels or the venules of the portal system are for the most part destroyed and digested by the leucocytes. But by the employment of adequate means it can be shown that even in the healthy liver and kidney in a large number of cases a certain number of living bacteria are present almost constantly. It is most probable, further, that in ordinary health a certain number of bacteria which have not been destroyed by the leucocytes or removed by the lymph nodes or endothelium of the portal system, pass as suggested by the studies of Desonbry and Porcher, either through the thoracic duct or through the liver into the systemic blood. Thus it follows from these observations that there most probably exists a condition which the French term "microbisme latent," or as Adami prefers to designate it, "latent infection."

Experiments which I have recently carried on along similar lines to those outlined by the above-named investigators, but bearing more particularly upon the relation of such bacterial invasions to liver and gall-bladder infections, amply confirm the main facts as outlined in the previous paragraph.

Distribution in the Human Body After Death.—The distribution of the bacillus coli communis in the dead body and the condition of its occurrence are of the greatest interest and highest importance in the interpretation of postmortem bacteriology, more especially when the causal significance of this organism is to be established for any lesion. Definite knowledge of its escape into the general circulation and organs after death begins with the studies of Wurtz and Herman[16] and those of Welch[17] published in 1891. The work of these writers received confirmation in the later researches of Beco,[18] and Achard and Phulpin.[19] These observations not only established the frequency with which intestinal bacteria escape into the blood and tissues postmortem, but tend to show that such invasion may take place with or without apparent lesion of the intestinal mucous membrane during the last hours of life. This view has more recently been reaffirmed by Birch-Hirschfeld,[20] who has added observations of his own in support of this belief. Agonal or postmortem invasion is thus a more or less constant phenomenon, most conspicuous in warm weather, and occurring with especial frequency in the liver, and to a less degree in the kidneys, spleen, portal and heart blood, and bile.

THE DEVELOPMENT OF VIRULENCE IN THE BODY.

Under the conditions normally prevailing in the intestine the bacillus coli communis is of relatively low virulence, as shown by the experiments of Dryfuss,[21] Macaigne[22] and others; although in this there seems to be some variation in different parts of the intestinal canal. De Klecki[23] from his studies concluded that it may be of greater virulence in the ileum than in the colon, for instance. My own experience certainly shows no difference in virulence in these two situations, which may be regarded as constant or common. However, general experience abundantly demonstrates that the bacillus is on the whole non-pathogenic, as ordinarily found in normal feces.

But alterations from the conditions normally prevailing in the gut soon increase its virulence. Thus, if the colon bacillus be enclosed in a loop of intestine which is experimentally strangulated, it very soon acquires virulence in the lumen, as shown by the illuminating researches of de Klecki.[24] Mere changes in environment, such as passage of the bacillus into the abnormal situations—through the intestinal walls into the cavity of the peritoneum—may be sufficient to exalt its virulence.

Fermi and Salto,[25] from the results of their investigations, conclude that any abnormal condition of the intestinal mucous membrane, such as would be produced by ligature, cold of the abdomen, too much food, etc., almost invariably increases its pathogenic activity, a fact whose significance in the pathogenesis of colon bacillus infections is far-reaching.

All of the writers appear to favor the theory that the virulence of the bacillus is the result of the growth in the living fluids of the body which are supplied with an unusual amount of albuminous matter by the process of inflammation. The seat of the inflammation, which may either be in the intestine or in other viscera, influences to some extent the degree of virulence. The normal intestine provides food in a most favorable form for assimilation by this organism and from which it forms

indol, namely, peptones, the product of the tryptic enzyme. There is also supposed to be a commensal relation between the cells of the intestinal mucosa and the colon bacillus. In this connection the conclusions drawn by Peckham[26] from a very careful study that while the condition and nutrition and development in the intestine seem to be most favorable, the colon bacillus does not become virulent for the reason, she states, "that its first force is spent upon the process of fermentation, and as long as opportunities exist for the exercise of this function the affinities of this organism appear to be strongest in this direction. Moreover, the contents of the intestine remain acid until they reach the neighborhood of the colon, and by that time the tryptic peptones have been formed and absorbed to a great extent. Under such conditions the colon bacillus has relatively little opportunity to assume an excess of proteolytic activity.

"During the process of inflammation in the digestive tract a very different condition may exist. The peptic and tryptic enzymes may be partially suppressed. Fermentation of carbohydrates and proteid foods then begins in the stomach and continues after the mass of food is passed on to the intestine. The colon bacillus can not, therefore, spend its force upon fermentation of sugars, because they are already broken up and an alkalin fermentation of the proteids is in process. It also can not form peptones from the original proteids, for it does not possess this property, and unless trypsin is present it must depend upon the proteolytic activity of other bacteria for a suitable form of proteid food. Perhaps the bacteria form an albuminoid molecule, which, like leucin and tyrosin, can not be broken up into indol, and thus there might be caused an important modification in the metabolism of the colon bacillus which may have either an immediate or remote influence upon its acquisition of disease-producing qualities, for my own experiment indicates that the power to form indol and the actual forming of it are to some extent an indication of the possession of pathogenesis."[27]

It has further been conjectured that pathogenic activity of the colon bacillus for man may depend on changes of environment—the result of growth in a new host of like or unlike species—such as might create alterations in the normal physiological activities of the bacillus, possibly similar to those suggested by Peckham. This view that the disease-inciting properties may depend upon just such changes brought about by transmission through new and unnatural hosts, has more recently been further emphasized by Theobald Smith.[28] I am inclined to lay great stress upon this as a factor in the development of virulence under some conditions.

The direct action of the colon bacillus is, however, due in part at least to irritating chemotactic substances in its protoplasm shown by the work of Pfeiffer, Kalle, Loeffler and Abel, and by the more recent studies of Vaughan and Cooley.[29] The last-named investigators give the following conclusions:

1. The colon bacillus in virulent form contains within the cell a toxin which is fatal to guinea-pigs of from 200 to 300 grams weight, in quantities of less than 1 mg.

2. The aqueous extract of the cells of the colon bacillus grown on agar is inert.

3. The entire germ is resistant to heat, and to dilute acids and alkalies.

4. The cell wall of the colon bacillus is digested by the prolonged action of the gastric juice which does not alter the toxin.

5. The toxin as thus obtained is insoluble, or but slightly soluble in dilute acid, but is slightly soluble in water and more readily in dilute alkalies.

6. This toxin responds to the ordinary proteid reactions.

7. The toxin, after being freed from the cell membrane, is not destroyed by being boiled.

RESUME OF LESIONS IN WHICH THE BACILLUS COLI COMMUNIS HAS BEEN FOUND.

General Considerations.—The study of the wide anatomical distribution of lesions which may be induced by the bacillus coli communis is of the greatest clinical interest to surgeon and physician alike. Although a great diversity of colon bacillus infections has been described, for most of them, however, the assumed causative significance of the bacillus is unwarranted. If, as the researches of Adami and Ford seem to indicate, this organism may be present in the viscera and blood under normal conditions during life, the difficulties of the problem of the relationship of the colon bacillus to various lesions—especially when the frequency of postmortem bacterial migration is considered—becomes enormously increased. While to the writer few of the reported cases are convincing, still the recital of the cases indicates the class of lesions in which the organism is particularly apt to be found, sometimes being the primary exciting factor, more often, however, having only the interest of a secondary invader.

The caution necessary in the interpretation of autopsy bacteriological findings, particularly with reference to the bacillus coli communis, is admirably shown by the experiences of Veillon and Joyle,[30] and Charrin and Veillon.[31]

From a liver abscess which had on previous examinations been found sterile the first named observers finally obtained the colon bacillus in a subsequent examination; this was clearly a case of secondary invasion. The observation of Charrin and Veillon relates to a case of peritonitis in which pneumococci were present in large numbers during life, but twenty-four hours after death the colon bacillus alone was obtained. Equally interesting are two experiences of my own which further emphasize the limitations of postmortem bacteriology with reference to this organism. In an acute fibrino-purulent pleuritis in the exudate from which the diplococcus lanceolatus had twice been isolated unassociated with other bacteria, a third examination made two hours before death revealed, as did also that made at the autopsy, only the bacillus coli communis. In another case of septicemia with peritonitis from which the streptococcus pyogenes had been cultivated from the blood during life, two agar and blood serum cultures similarly made from blood withdrawn from one of the veins after sterilization of the skin six and two and one-half hours before death contained the colon bacillus alone. In both cases the autopsy findings would have failed to show the real primary inciting factor. As examples of agonal invasion of the blood of the general circulation these cases are most instructive.

Circulatory System.—In a considerable number of instances the colon bacillus has been credited with inciting general infection, starting either from local lesions of the intestinal mucous membrane or from the surface of the body,[32] from an angiocolitis,[33] from a cystitis,[34] or from the uterus.[35] Infections with the bacillus coli communis may give rise to any of the multiple and varied manifestations of septicemia including purpura. Gwyn[36] has reported an interesting observation of general infection with a paracolon bacillus, the clinical

symptoms of which suggested typhoid fever. Eisenhardt[37] and Kerr[38] have both reported instances of general infection of puerperal origin. Phlebitis, particularly in puerperal women, has also sometimes been associated with infection with the same organism by Wurtz[39]; and Hartmann and Luffering[40] have reported cases of hemorrhoidal phlebitis in which it was found. Personal experience with bacillus coli communis bacillemia is limited to a single conclusive case, the history of which was as follows:

Mary L., aged 57 years, before onset of present illness had been bedridden for six months owing to an advanced locomotor ataxia. The family history was unimportant; the patient's personal history showed evidences of syphilitic infection twenty years before. Nine weeks before death there gradually developed a large lumbosacral bed-sore which sloughed ten days later. The oval ulcerated area measured 11 by 9 cm.; and until death continued to discharge a considerable amount of thick, yellowish-brown foul-smelling material. An occasional slight evening rise of temperature had been noted since the development of the sore—1 degree. Two days after having accidentally fallen out of bed, but with no apparent damage, the patient suffered from a chill, followed by moderate fever of an extremely irregular type (100.2 to 104.5). The pulse rate remained steadily between 105 and 120. Moderate diarrhea developed on the third day after occurrence of chill; finally on the sixth day low muttering delirium was observed and continued to the end, which occurred on the eleventh day following the chill. On the third day the patient's spleen was just palpable on deep inspiration; and the liver dulness was possibly a trifle increased. The heart was not perceptibly enlarged, but a soft systolic murmur which had not been present before was on the fifth day heard all over the cardiac area, loudest at the apex.

The blood was examined on the fourth day, with the following result: Reds, 3,208,940; leucocytes, 19,700; hemoglobin, 55 per cent.

Dried specimens stained with Ehrlich's triacid stain showed moderate poikilocytosis, but no nucleated reds were observed. The differential count (500 whites) resulted thus: Small mononuclears 5.7 per cent.; large mononuclears and transitionals, 3.8 per cent.; polymorphonuclear neutrophiles, 89.6 per cent.; eosinophiles, .9 per cent.

Urine.—Uniform cloudiness from the third day on. Previous examinations had shown it to be clear, pale, of low specific gravity and containing hyalin and granular casts with small amounts of albumin. Daily examinations of the urine during this last illness showed practically the same thing; the albumin and casts were, however, increased in amount and after the third day the urine remained persistently cloudy. With this appearance, numerous short, active motile bacilli and some pus cells were observed in the urine; they persisted throughout the disease.

Bacteriological Examinations During Life.—Five c.c. of blood were withdrawn on the second and sixth days, respectively, from one of the veins at the bend of the elbow after thorough sterilization with soap and water, ether, 1 to 500 bichlorid mercury (alcoholic solution) and then alcohol. Aërobic agar plate and blood serum tube cultures were prepared from the blood. In all the cultures, particularly in the plates, a moderate growth occurred. This consisted of a single organism whose morphology was similar to that of the predominant organism in the bed-sore pus. It grew well on all media, decolorized by Gram's method, fermented glucose, coagulated milk, produced indol; clouded broth and Dunham's solution; it appeared as a thick yellowish or white growth on potato; and was moderately motile in young cultures. In all other respects it acted like the bacillus coli communis.

On the fourth day similar cultures were made from the urine and pus of the lumbosacral ulcer. From both the bacillus coli communis was also obtained from the urine in pure culture, and from the ulcer associated with small numbers of the staphylococcus pyogenes albus.

Summary of Autopsy Findings.—The autopsy was made one and three-quarter hours after death. The revised anatomical diagnosis, corrected by microscopic study of sections of the removed tissues, is as follows: Degeneration of the posterior cord columns (tabes dorsalis); fresh vegetative endocarditis of mitral valve with chronic interstitial myocarditis; chronic diffuse nephritis; acute splenic tumor; calcareous atheroma of the thoracic and abdominal aorta; slight fatty atheroma of coronary arteries; congestion of the intestine with swelling of the solitary follicles of the ileum and colon.

Autopsy Bacteriological Findings.—Cultures were taken from the blood of the right auricle, mitral vegetation, left lung, liver, gall-bladder, spleen, both kidneys, urinary bladder, and marrow of right femur. Agar plates and blood serum tube cultures were made and incubated in air and in a hydrogen atmosphere. The bacillus coli communis was demonstrated in all cultures. No other organisms were found.

The virulence of the bacillus obtained from the heart's blood was tested on two rabbits. The first rabbit (1927 grams) received a one-half cubic centimeter of a 16-hour broth culture intravenously; profuse diarrhea followed and it died 21 hours after the inoculation. The lymphatic apparatus of the intestine was found swollen and the mucous membrane congested. A small amount of cloudy fluid containing leucocytes was also present in the pericardial sac. The second animal (1711 grams) was inoculated with the same amount of the same culture in the peritoneal cavity; it died in 15½ hours. The autopsy showed diffuse purulent peritonitis. The bacillus coli communis was recovered from the blood of the heart in both animals, and from the peritoneal exudate in the one and that of the pericardium in the other.

Endocarditis in colon bacillus infections, such as occurred in this case, has already been pointed out by Gilbert and Lion,[41] Thiroloix,[42] Macaigne,[43] and Etienne,[44] and Rendu.[45]

ALIMENTARY TRACT AND ACCESSORIES.

No other micro-organism has been given such prominence in the bacteriology of the gastro-intestinal tract as the bacillus coli communis. This is sufficiently explicable by its almost constant presence in the various inflammatory lesions usually in considerable numbers. There is scarcely any portion of the alimentary canal in which it has not been found associated with greater or less inflammatory lesions, sometimes in pure culture, more often concomitant with one or more other bacteria. Thus, even in the angina of scarlet fever it has been attributed an occasional inciting part by Bourges.[46] And Widal,[47] Bouloche,[48] Lermoyez,[49] and Newcomb,[50] have observed its presence in simple acute angina, whilst Blasi and Russo-Travalli[51] have pointed out its frequent association with the diphtheria bacillus in diphtheria. In the less acute forms of sore throat it has also been sometimes given importance by Lermoyez, Helme, and Barbier,[52] and Hudelo and Bourges.[53] The colon bacillus has also been found in a pharyngeal abscess by Wurtz;[54] in this case, however, the streptococcus pyogenes was also present in the exudate.

The following case of colon bacillus angina came under my own observation. The patient was a hospital orderly, 27 years old, whose family and personal history were good. For the two months prior to the illness of interest here, he had been doing hospital work in a ward containing numerous typhoid fever cases. One morning following the usual day's work he was awakened by the pain of a severe sore throat. Examination that morning showed the presence of swollen lymph nodes about the angle of the jaws and a thin grayish membrane covering the left half of the pharynx and irregularly spreading over a good part of the tonsil of that side. The neighbor-

ing mucous membrane was intensely congested. The breath was fetid. During the next twenty-four hours the membrane formation continued until it covered most of the posterior wall of the pharynx and part of the uvula. The right tonsil remained uninvolved. The fever was at no time high; it ranged from 99.6 to 102.4 F. Beyond local pain and some malaise the patient's condition after the second day approached more and more the normal, when on the fourth day he was fully well.

Bacteriological Examination.—Smears made from the membrane and stained with Loeffler's methylene blue contained large numbers of short, thick bacilli, which readily decolorized by Gram's method. A few rather large oval cocci sometimes single or arranged in pairs, sometimes as tetrads (micrococcus tetragenus) were also observed. Agar plates and blood serum cultures made at the same time contained, beside a few colonies of the micrococcus tetragenus and staphylococcus pyogenes albus, cultures of an organism morphologically and culturally like the bacillus coli communis.

The bacillus had been looked upon as an especially active pathogenic factor in diffuse disease of the intestine because of its increased numbers and exalted virulence whenever inflammatory disease of the parts has existed. Epidemics of infectious enteritis have been referred to a modified and more virulent form of the colon bacillus. Since the early observations of Wyss,[55] and Hueppe[56] upon cholera nostras the investigations of Baginsky,[57] Escherich,[58] Mace and Simon,[59] and others[60] have suggested its importance in the pathogenesis of cholera nostras, cholera infantum, and other forms of enteritis. By the studies of Booker,[61] Cumston,[62] and Nobécourt,[63] it has been shown, however, that in these lesions, organisms, particularly cocci, of known pathogenic activity, are usually coexistent with the colon bacillus. This is of the greatest importance in any analysis of the significance of the bacillus coli communis in gastro-intestinal inflammatory lesions. As in many other lesions, its rôle is to be regarded as accessory rather than primary in the pathogenesis of disease of these tissues, an opinion also entertained by Marfan[64] and Fischl.[65]

Similarly, this organism has been regarded by many writers as the inciting microbic factor in dysentery, but more especially by Chantemesse and Widal,[66] Maggiora,[67] Ogata,[68] Laveran,[69] Arnaud,[70] Coutet and Loir.[71] This view has been discredited within recent years.

The rôle of the bacillus coli communis in typhoid fever has been variously estimated by different observers. From the fact that it is greatly increased in nummers and virulence in this disease some have felt disposed to attribute to it an important part in the incitement of the intestinal lesions so characteristic of this disease.[72] However that may be, it is wholly secondary to the typhoid bacillus. In traumatic lesions of the intestine the colon bacillus evidently has greater claims as an incitant than in some other forms of intestinal lesions. That it may induce inflammation of the intestine is evident, for it has been shown experimentally and clinically that the virulence of the contained bacilli in strangulated gut is soon exalted, as the experiments of de Klecki demonstrate.[73]

Peritonitis.—The literature of peritonitis has been enriched from time to time by valuable contributions made to its bacteriology, mainly by Larnelle,[74] Barbacci,[75] Tavel and Lanz,[76] Grawitz,[77] and quite recently by Flexner.[78] So uniformly has the bacillus coli communis been found in pure culture in cases of peritonitis following perforation of the intestine or stomach that it was for a long time accepted almost without question that this organism is the excitant of the disease in the majority of cases. There has been a radical change of opinion, however, within the last few years, regarding the pyogenic activities of the colon bacillus in peritonitis. The observations of Barbacci suggest that other factors than the colon bacillus must not be disregarded, and that the primary lesions are usually incited by pus-producing cocci. Better methods of bacterial cultivation clearly show that there is in the vast majority of cases concurrent infection. Flexner's[79] experience was a high frequency of the pyogenic cocci in his series, results which agree with my own. However, that the bacillus coli communis can not always be considered merely a secondary invader is shown by the reports of Flexner and others.

Appendicitis.—Recent studies of the pathogenesis of appendicitis have thrown a flood of new light upon the bacteriological side of this interesting disease. It is now definitely established that most cases of appendicitis begin as a local inflammation of the organ induced by intestinal bacteria. To what extent the different species contribute to the incitement of the process is still unknown. For the most part, I am inclined to believe with Monod,[80] Dieulafoy,[81] Kümel,[82] Achard and Brocha,[83] Darling,[84] and Low,[85] that the pyogenic cocci are ordinarily the primary factors, and the colon bacillus often accessory to the process. Thus Low found the streptococcus pyogenes in 81 per cent. of the cases under three days' duration; in the more chronic cases the colon bacillus was more common. My own experience with twenty-eight acute cases under four days shows the streptococcus in 73 per cent. Adenat,[86] Poncet and Jaboulay,[87] Talamon,[88] Tavel and Lanz,[89] Kirmison,[90] Obrastzow,[91] A. O. J. Kelly,[92] on the other hand, assume that the colon bacillus plays by far the predominant rôle in the bacterial origin of appendicitis. A. O. J. Kelly found the colon bacillus in pure culture sixty-nine times in ninety-four cases of acute appendicitis, and the streptococcus present but in a single case. These results do not agree with other recent investigations. A study of cover-slip preparations and the use of more comprehensive methods of cultivation invariably reveal much greater frequency of the streptococcu Notwithstanding, the experimental observations by Roger and Josue[93] and de Klecki[94] indicate that the bacillus coli communis is probably occasionally alone concerned in the incitement of appendiceal inflammation.

Frazier,[95] from the result of his studies on the origin of appendicitis, comes to the conclusion that imperfect drainage from constriction of the lumen or otherwise is the most potent element in the pathogenesis of the process. Such a condition of affairs in his mind leads to an augmentation of the virulence of the contained colon bacillus.

LIVER AND BILE PASSAGES.

Under normal conditions the intestinal bacteria are only found a short distance up the common bile duct, but any alteration from the normal, such as mechanical impediment to the outflow of bile, change in the composition of the bile or other perturbation in the physiology of secretion may be followed by an ascending infection of the ducts or gall-bladder with the bacillus coli communis, thus inducing angio-cholitis[96] or cholecystitis.[97] These conditions have both been realized experimentally by Charrin and Roger.[98]

A colon bacillus cholecystitis may in turn induce the formation of biliary calculi. Welch[99] was among the first to establish the frequent occurrence of this organism within the interior of gallstones, an observation

since confirmed many times by Gilbert and Dominici,[100] Gilbert and Fournier,[101] Hanot,[102] and Letienne.[103] My own experience showed that the bacillus coli communis was present in about 25 per cent. of the stones examined. This in a general way agrees with the results of observers like Gilbert and Fournier, Hanot, and Letienne. Since the bacterial origin of gallstones was suggested by Galippe[104] in 1886, the importance of this organism in the development of cholelithiasis has been proved by the studies of Mignot,[105] Gilbert and Fournier,[106] and Mieczkowsi.[107] My own experiments (to be published later) fully confirm the work of the last-named investigators. All of the studies indicate that the colon bacillus is the most important bacterial factor in the incitement of this lesion.

A variety of lesions of the liver itself have been attributed to infection with the colon bacillus. Thus Achard,[108] and De Vecchi[109] studied its relationship to certain forms of suppurative hepatitis. In infectious icterus it has been found in the blood during life, but of its clinical significance in the disease nothing of a positive nature can yet be said. Lesage and Demelin[110] have more recently ascribed to it considerable prominence in other types of icterus encountered in the newborn. Finally, it has been suggested, more especially by Adami, that this micro-organism is probably of importance in the development of some forms of progressive cirrhosis of the liver. Although this has not been established there are certain points in the experiments of Weaver[111] that tend to lend support to the view that the colon bacillus may induce changes in the liver ultimately leading to cirrhosis of the organ.

URO-GENITAL SYSTEM.

All observers are agreed as to the frequent occurrence of the colon bacillus in the urinary tract. When it enters the tissues from the intestine it is frequently excreted through the urine, sometimes thus inducing local inflammatory lesions of the kidney and bladder. Probably such lesions are more often the result of ascending invasion of the tissues, either from the bladder, or from the anterior urethra where this organism has been found as a saprophyte.[112]

In this connection the experiments of Posner and Lewin[113] are of the greatest interest. They found that if the bowel were tied at the anus, and the urethra were ligated, the colon bacillus was found in the bladder. The fluid in the peritoneal cavity between the rectum and bladder remained sterile; but in all instances the kidneys contained the same organism that occurred in the bladder. They concluded that the bacterial exodus took place through the renal tissue and not by direct transmission through the walls and cavities involved. On the other hand, Van Calcor[114] comes to the conclusion from a long and carefully performed series of experiments upon rabbits that in a considerable number of cases of infectious cystitis the infection comes directly from the digestive tract, probably by the subperitoneal path. Both views are probably correct; in women the latter path is evidently common. Th. Brown,[115] from his studies of cystitis, pyelitis and pyelonephritis in women, concludes that the usual mode of infection is by the urethra.

Investigation into the pathogenesis of infectious nephritis has revealed a large class of bacteria which may be considered of importance in the development of the process. Among the micro-organisms the colon bacillus has at different times and by different writers been regarded with varying clinical significance. Partly from the ease with which it gains entrance into the kidney this organism has been regarded by some observers—Achard and Renault,[116] Fernet and Papillon,[117] Chantemesse and Widal,[118] Jeanselme,[119] Graf[120] and Macaigne[121]—as the excitant of certain descending forms of nephritis. Since the work of Halle and Albarran[122] it has also been regarded as the one most commonly found in ascending pyelitis and pyelonephritis.

It has been assumed that some of the kidney infections were of intestinal origin.[123]

Experience seems to indicate a greater frequency of colon bacillus infection in women than in men. The recent observations of Brown[124] certainly establish the fact that cases of pyelitis and pyelonephritis in women commonly contain this organism in pure culture in the diseased parts, probably due to close proximity of the female urethra to the anus.

Although it is universally conceded that the bacillus coli communis is the micro-organism most commonly found in cystitis the significance of its presence has by no means been definitely established. The French school headed by Guyon has always maintained that it was the most prominent microbic factor in the disease, whilst Melchior, Rovsing, Moullin, and others have contended that other bacteria, mainly pyococci, were of greater importance. This difference of opinion has given rise to a controversy of much interest on more points than one as regards the question at issue. A review of the investigations of Albarran and Halle,[125] Rovsing,[126] Morelle,[127] Krogius,[128] Melchior,[129] Brown,[130] and Douglass,[131] as well as my own experiences, leads to the conclusion that the colon bacillus is, in cystitis, much more often the inciting agent than in any other class of lesions; but that it is the most common primary bacterial factor I am inclined to doubt. It is more probable that it is, as elsewhere, a frequent invader of the bladder, especially when changes have already been induced by other micro-organisms, such as the pyogenic cocci.

In previous studies sufficient attention has not been given to a consideration of concomitant or previous disease, acuteness and chronicity of the cystitis, reaction of the urine, and to the stage of disease in which examination is made, sex and age of patients. Future investigations can not ignore such conditions if more exact knowledge of the bacterial etiology of cystitis is to be attained.

The original infection is, without doubt, very often masked in the long-standing cases by secondary colon bacillus invasion. Then as regards the frequency with reference to sex, the studies of Brown and my own experience show a relatively greater number of cases of acute cystitis among women in which the colon bacillus is present. Thus, among thirty-seven cases of acute cystitis (24 female, 13 male) under ten days, which I studied bacteriologically, 62 per cent. of the women showed colon bacillus as against 35 per cent. for the men. Brown's series of twenty-six cases of cystitis in women following operation contained this organism in 57.7 per cent. of the cases. The mode of entrance into the bladder he believes was ordinarily through the urethra by catheterization, although this procedure was performed with great care. The occurrence of infection under these conditions is sufficiently explicable by the observations of Melchior.[132] Savor,[133] Gorowsky,[134] Bouchard and Charrin,[135] who showed that the normal urethra may contain the bacillus coli communis.

In the reported cases of bacteriuria this bacillus is the micro-organism most frequently encountered; thus

Jeanbran[136] found it fifty-six times in 67 cases, and thirteen times in pure culture. Still more interesting is its relation to pneumaturia as shown by the cases reported by Pere,[137] Favre,[138] Schow,[139] Heyse,[140] and Hall.[141] In the cases of Pere and Hall sugar urine was present, but in the others its absence was specially noted.

Infection, particularly with colon bacillus, has from time to time been suggested by various observers as the important factor in the development of urinary fever; and Achard and Hartmann[142] have published the history of a case in which this was assumed to be the case. Gilbert[143] further believes that "urinary paralysis" may often be attributed to colon bacillus infection; the case which he cites in support of this belief does not carry much conviction.

A variety of other lesions of the uro-genital tract have also been described in which the same organism has been regarded more or less definitely as having clinical significance. Thus Barbacci[144] found it in foci of suppurative inflammation in the prostate gland; and Pezzoli,[145] Pluyn and Laag[146] in the pus of acute urethritis. Malherbe and Monnier[147] have described a case of gangrenous inflammation of the penis, apparently induced by a variety of the colon bacillus. In the cases of epididymitis and orchitis reported by Karo[148] a history of enteritis was elicited; the colon bacillus was repeatedly isolated from these lesions.

This organism has likewise been found in the genital organs of the female in a few cases. Colon bacillus metritis has been described by Gilbert;[149] and Eisenhardt[150] has reported it as inducing puerperal fever. Its presence in salpingitis has been noted; Gilbert and Lion,[151] Raymond,[152] and Gebhard[153] reported instances of this kind. With regard to the last reported case Dr. Welch has pointed out the possibility of its being a bacillus aërogenes capsulatus infection. Hall[153 1/2] has very recently described a case of vaginal false membrane in which the colon bacillus was found.

RESPIRATORY SYSTEM.

Few cases are on record of the occurrence of the bacillus coli communis as a pathogenic agent in lesions of the respiratory organs. The examples of bronchopneumonia that have been attributed to it have been published by Gilbert and Girode,[154] Levy and Fischer,[155] Mace and Simon,[156] Sevestre and Lesage,[157] Kreibich,[158] Lesage and Mascaigne,[159] Harbitz,[160] and several others. Thiercelin,[161] and Renard[162] have recorded cases of phlegmonous infection supposedly originating in the intestine. Hitzig[163] cultivated the same organism from two cases of what he considers to be primary putrid bronchitis; in both he thought the colon bacillus was the active microbic excitant. Cases of pleuritis sometimes associated with foul-smelling pus have also been reported by Widal and Albarran,[164] Netter,[165] Dumontpallier,[166] Henke,[167] Wendrickx,[168] and Metzel,[169] in which the same bacillus was believed to be the inciting microorganism.

To this list I am able to add one of acute purulent pleuritis. The case was that of a six-year-old child whose previous history and health were excellent. During the hot weather of August, 1900, the child was taken acutely sick with symptoms of entero-colitis. At the start the temperature did not exceed 101.6 degrees F.; the urine contained a trace of albumin and some hyalin casts on the third day. On the fourth day there was noticed marked dyspnea accompanied by the ordinary symptoms of acute left-sided pleuritis. A leucocyte count made at this time revealed 11,500 leucocytes to the cm.; for the most part polymorphonuclear (88.4 per cent.). Two days later (sixth day of disease) signs of fluid in the left chest were observed and about 200 c.c. of ill-smelling purulent exudate were removed by the aspirator. The intestinal symptoms continued unchanged for ten days; then gradual improvement occurred. One month after onset of first bowel symptoms the health of the patient was almost fully re-established.

Bacteriological Examination of Pleural Exudate.—Five cover-slip preparations of the exudate were stained with Sterling's gentian-violet and searched for bacteria. Numerous short plump rods were observed which decolorized by Gram's method. Cocci were especially looked for but with no success.

Agar plates (aërobic) contained apparently only one organism—a bacillus morphologically similar to that observed in exudate—which in all respects corresponded to the bacillus coli communis. The virulence of the organism was not tested on animals; but it was agglutinated by the serum of the patient as follows: 1 to 10 dilution in 9 minutes; 1 to 30 dilution in 25 minutes.

This may well have been an infection originating in the intestinal canal; as to this, however, proof is wanting. The clinical history alone suggests such an association.

NERVOUS SYSTEM.

Practically all of the cases of colon bacillus infection of the nervous system relate to meningeal inflammation, purulent in character. The cases reported by Adenat,[170] Netter,[171] Roux[172] and several others indicate that the character of inflammation does not essentially differ from that which other bacteria may induce. One instance of its presence in a brain abscess has been recorded by Sevestre and Gaston.[173]

I have found the colon bacillus in pure culture in a lumbar puncture fluid. The case was that of a four and a half year old child who had been suffering for eleven days with diarrhea and moderate fever. On the twelfth day symptoms of acute meningitis were observed, and a lumbar puncture made on the following day enabled one to get about 2 c.c. of turbid serum which contained large numbers of polymorphonuclear cells, a few rods, and a small number of short motile bacilli. Cover-slips stained for bacteria showed bacilli morphologically similar to those seen in the hanging-drop specimens: they decolorized by Gram's method. The agar plates and serum tube cultures (aërobic) showed but one organism in every way similar to the bacillus coli communis. The child continued sick with the same symptoms until it died on the fifth day of the meningitis. Cultures from lumbar puncture fluid obtained on the day preceding death gave analogous results to the first. No autopsy was obtained on this child.

SENSE ORGANS.

Very few cases of inflammation of the sense organs have been recorded in which the colon bacillus has been regarded of pathogenic significance. Werner,[174] and Jacques[175] found it in suppurative disease of the nose. Both claim that the fetid discharge is characteristic of such infections in this situation. Mercanti,[176] Randolph,[177] and Mazet[178] have described cases of tear duct inflammation in the secretions from which it was also isolated. Bietti[179] reported its presence in a case of blennorrhea neonatorum. In purulent otitis it has been found several times by Meniere,[180] Guizzetti,[181] Stern,[182] and Baup and Stanculeanu.[183]

MISCELLANEOUS FOCAL LESIONS.

Besides the different lesions already mentioned the bacillus coli communis has been found in a great variety

of other conditions in which it has been supposed to be the excitant. For the most part abscesses incited by it have been located in the neighborhood of the digestive tract, more especially the anus. Tavel[185] and Brunner[186] mention cases of wound infection with the bacillus. Suppurative inflammation of the breast,[187] muscle,[188] and bone[189] have been also described. Arthritis is also mentioned as one of the lesions.[190]

Two interesting cases of gaseous phlegmonous abscess have also been described by Dungern[191] and Bunge.[192]

CONCLUSIONS.

1. The bacillus coli communis is widely distributed in the normal body and in nature. It is usually present as a saprophyte in all parts of the alimentary canal, and may also be present as such in the lower portion of the common bile duct, on the skin, especially in the neighborhood of the mouth and anus, and in the anterior portion of the urethra and vagina.

2. The bacillus coli communis may, under what seem to be normal conditions, be carried during life from the intestine to healthy viscera. This invasion takes place from the intestine into the abdominal viscera, more especially the liver and kidneys, through the portal circulation. It is possible that similar invasions may take place from other parts, especially the mouth, pharynx, etc. Further, it is probable that under similar conditions to which these invasions occur, bacteria may sometimes reach the systemic circulation.

3. Agonal and postmortem invasion of the tissues of the body is common, occurring with great frequency under the most diverse circumstances with or without apparent lesion of the mucous membrane of the intestine.

4. The virulence of the bacillus coli communis is influenced by at least two factors; 1, changes in the physiologic activities of the intestine; 2, growth in new host environments.

5. The rôle of this organism as a primary inciting factor in infection is infrequent. It is as a secondary invader of tissue previously occupied by micro-organisms, or of tissue already injured from other causes that it claims our chief attention.

6. The bacillus may induce inflammatory lesions, mainly suppurative, in the body tissues generally; the infection may originate in the intestine.

7. Its rôle in acute inflammatory lesions of the intestine, more particularly of the appendix, peritoneum, and urinary passages, has been generally overestimated. Whilst it may be the primary inciting factor, other organisms usually take this part, the bacillus coli communis more commonly acting as an accessory factor.

8. It is a factor of importance in the incitement of cholelithiasis.

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MEDICAL ASPECTS OF CHOLELITHIASIS.*

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It will be quite impossible in the time suitable for an occasion like this to even touch upon many of the important phases of this question and I shall therefore limit myself to those aspects which it would seem desirable to discuss before a surgical society, in other words, to consider the reasons why this disease, which ideally is a surgical one, falls so largely to the lot of the medical man. In the first place, the burden of the diagnosis is on the latter, for the surgeon rarely sees these patients first. Secondly, the medical man is the one who decides which cases shall be operated on and which shall be treated by medical means, for the great bulk of the cases do not require mechanical interference, but any case may at any moment require it and some cases from the outset of the symptoms are inappropriate for medical treatment. We must therefore consider the indications for surgical treatment, and lastly, we must briefly refer to the medical treatment of the cases in which surgical interference is unwise either because of the mildness of the symptoms or because of some concomitant disease or in which mechanical means have failed to give the desired relief.

If gallstones always presented themselves under the typical picture of the gallstone colic, there would be but little difficulty in the diagnosis, but, unfortunately, the pictures are extremely diverse so that often months or even years elapse before the diagnosis becomes clear. Frequently, however, the obscurity of the diagnosis is due to the fact that the multiformity of the symptoms is not sufficiently appreciated and the diagnosis is deferred until a paroxysm of pain is followed by jaundice. Too many are content with making a symptomatic diagnosis such as gastralgia, hepatalgia or neuralgia.

For purposes of diagnosis cases of gallstones may be conveniently divided into two groups, those with colic and those without. For sake of brevity, let us disregard the cases with paroxysmal pain and jaundice as being too manifest to require discussion and consider only the cases of pain without jaundice. Any of the diseases of any of the abdominal organs which ever cause colic may be confused with gallstone colic and some of the diseases of the thoracic viscera and nervous system also are not rare causes for confusion. Some of these errors are easily avoided by careful and systematic examination, others are unavoidable until after the abdomen is open.

Tabes dorsalis sometimes presents a very faithful copy of gallstone colic and I have personally seen several cases of this disease which have been operated on for gallstones. The error is easily avoided provided only the possibility of it is remembered. Attention to the Argyll-Robertson pupil, the Rhomberg symptom and the knee-jerk will prevent the error. A diagnosis of gallstones in a tabetic should be made only when there is something more significant than paroxysms of pain and tenderness in the region of the gall-bladder. Jaundice following pain with a palpable gall-bladder with or with-

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out crepitus, or better still, with the demonstration of a gallstone in the feces, would warrant the diagnosis of gallstones in a tabetic. In a word, the clinical picture of gallstones must be complete and typical to warrant the diagnosis in a tabetic patient.

I have twice seen patients entered under the diagnosis of gallstone colic who had a pleurisy of the right side and nothing else. This error, like the one just mentioned, is easily avoided by an examination which is systematic and not limited to the region of the liver. Why the pain of a pleurisy should be felt over the region of the gall-bladder is not clear, but the phenomenon is probably comparable to the referred pains seen in a wide variety of diseases, for example, the neuralgia of the middle dorsal nerves of the left side so often found with various diseases of the stomach. It must, however, be remembered that the opposite error is also possible, that a right-sided pleurisy may be the result of gallstones. I am reminded of another possibility by a case which I saw two or three years ago with Dr. Herrick. It was a young man who gave a history of a number of febrile attacks which were reasonably interpreted as gallstone colic. Examination showed a localized pleurisy, low down anteriorly on the right side. This was thought to be a pleurisy of the right side, secondary to a localized peritonitis from gallstones, but when the abdomen was opened it was found to be a tubercular peritonitis with pleurisy by extension through the diaphragm and not gallstones.

Lead colic sometimes leads one into an error which may be avoided by attention. The occupation of the patient is usually the key to the puzzle. The lead line along the border of the gums, rarely absent among people exposed to lead intoxication, the localization of the pain in the umbilical region and the freedom from radiating pains, together with the lack of the more characteristic symptoms of gallstones, is usually sufficient to lead to a correct diagnosis. Moreover, the bulk of the cases of lead colic occur in male patients and it always requires a more complete picture to warrant the diagnosis of gallstones in a male than in a female. Greater difficulty will be found with the not uncommon cases of lead poisoning in patients whose occupation does not obviously expose them to lead poisoning. Here attention to the other effects of lead will be of aid, particularly the cardio-vascular, the renal and the neuritic effects.

The differentiation between gallstone colic and the pain of the ulcus ventriculi is usually simple, but when found difficult especial attention should be paid to the fact that the gallstone colic comes on generally with extreme suddenness in the midst of good health, while the pain of the ulcer comes on more gradually and is usually obviously influenced by the taking of food. It generally lasts a shorter time than the biliary colic, but the patients are not free from discomfort between the paroxysms as they usually are with the gallstones. Pain radiating to the right shoulder or to the right lower dorsal region speaks for gallstones, especially when followed by chill, fever and sweating. A marked increase in the hydrochloric acid in the gastric juice points to an ulcer, although a similar excess has been seen with cholelithiasis. Youth and anemia speak for the ulcer while age and repeated pregnancies speak for the gallstones.

Far more difficult than the differentiation mentioned is that between gallstones and the indefinite conditions grouped under the purely symptomatic name of gastralgia or neuralgia of the stomach. The subjective symptoms of the two conditions may be identical and the physical examination be equally negative in both. The close similarity between the two is clearly proven by the frequency with which the gallstones are diagnosed as gastralgia and less often by the opposite error. The development of a single symptom proving a disturbance of the biliary tract, such as jaundice, even the demonstration of the bile pigments in the urine or a palpable gall-bladder or continuously recurring tenderness in the region of the gall-bladder removes the doubt, but, unfortunately, such symptoms are often looked for in vain. Radiation of pain to the right shoulder, chills with fever, the cause of which is not manifest, particularly in women past the mid-point of life, should suggest gallstones. Attacks of pain in the epigastrium occurring at irregular intervals and often precipitated by psychic influences rather than by the taking of food, particularly in a neurotic patient, suggests a gastralgia. Examination of the gastric contents is often of aid in clearing away the obscurity. One should carry in mind the possibility of this confusion and if a patient, especially a female patient, who is not a neurotic, has several attacks of epigastric pain at frequent intervals even though there may be no jaundice, palpable gall-bladder or demonstration of gallstone in the stools, one should advise an exploratory laparotomy.

It is in such cases as these that the symptoms to which Dieulafoy applies the name of satellite symptoms are of aid in the differentiation. The gallstone cases are frequently greatly troubled by vertigo, slight or severe, fugacious or persistent, occurring either before or during the paroxysm of pain and even in some cases replacing the pain. Such attacks of vertigo are not infrequently regarded as gastric vertigo, but they rarely occur with the gastralgia. Syncope or rather a distressing tendency to lose consciousness is another sometimes prominent accompanying symptom.

Another of these symptoms is both an aid and a source of confusion. I refer to the chill, fever and sweat which not infrequently accompanies attacks of biliary colic. These are valuable in distinguishing the biliary colic from the renal colic and the gastralgia, with which they are said not to occur, but are a source of confusion because they are with difficulty distinguished from the bilio-septic fever resulting from infection of the bile tracts. Charcot, Pentray, Besnier and others long ago recognized two forms of fever resulting from cholelithiasis, one transient and of relatively slight importance, called by Charcot the hepatalgic fever, and the second or bilio-septic fever of serious moment. The explanation of the hepatalgic fever is unknown, but it seems probable that it is nothing more than a mild bilio-septic fever. At any rate, I think that we are justified in saying that any patient presenting several attacks of biliary colic with febrile phenomena should be considered as having septic bile tracts and be treated accordingly.

Formerly these febrile paroxysms, simulating as they do the malaria paroxysms, were often diagnosed as malaria, an error the more easily made because there may be accompanying them no more pain in the hepatic region than malaria often causes. To-day we are more liable perhaps to the opposite error, taking a malaria for an angiocholitis. Both errors are easily avoided by careful examination of the blood for the plasmodia and by the therapeutic test of quinin.

There are many other questions of diagnosis which might be discussed, just as those mentioned might be

more fully described. However, the things which appear to me most important have been mentioned about the errors which most easily and most frequently occur.

Having decided that the patient has gallstones, we must decide whether the patient should be treated medically or surgically and often this is much more difficult than the diagnosis. Could we adopt the idea advocated by several in the Surgical Section of the American Medical Association in 1900, namely, that the diagnosis of gallstones is in itself an indication for operation, there would be no need to discuss the question of surgical indications. I am glad to be able to say that the Chicago surgeons, I believe without exception, opposed so radical an idea as this. I know of no clearer demonstration of the absurdity of this position than that given by Professor Kehr. Kehr utilizes the figures of Riedel, who holds that in Germany there are 2,000,000 people with gallstones, of whom 5 per cent., or 100,000, suffer from symptoms; and of these 34,000 are in need of immediate operation. I know of no figures for America, but I am sure that every one of us has seen many cases of gallstones in which an operation could be no more justified than many of the ovariotomies done a few years ago or the hysterectomies done to-day.

Certain of the rules proposed by surgeons do not appeal to me at all. For example, I can see no point to Riedel's rule that one unsuccessful attack of biliary colic is an indication for an operation. By an unsuccessful attack he means one after which no calculus is found in the stools. He infers that the calculus is too big to escape and must therefore be removed, ignoring the fact that one may have an attack of colic without gallstones and that very many stones lie quiet for years even after exciting several attacks of colic. On the other hand, Kehr's suggestion that frequently repeated successful colics are not an indication for operation seems to me to be too conservative.

For a long time I have given my students the following list of indications for surgical interference: 1, frequently repeated attacks of colic; 2, septic symptoms in a patient who has symptoms of gallstones; 3, empyema of the gall-bladder; 4, localized or generalized peritonitis; 5, persistent jaundice; 6, obstruction of the intestines; 7, fistulæ.

Let us briefly consider these. 1. Frequent attacks of colic. This is really a rather indefinite statement for the word frequent is altogether relative. One must consider the character of the patient, the social condition and the responsibilities bearing upon her and a variety of other factors, but to put it briefly we may say that when the happiness or the usefulness of the patient is seriously interfered with by the attacks of colic and when their frequency is not materially lessened by medical treatment, an operation should be performed. It does not seem to me that the success or failure of the attacks has much bearing on the question. Far more important is the bearing of the chills and fever which often enough accompany the attacks. If these symptoms are frequently repeated, operation seems to me to be indicated even though the other signs of sepsis are wanting.

2. Septic symptoms developing in a patient suffering with gallstones. It would be superfluous to describe these symptoms even briefly, for the general symptoms do not differ from those of sepsis wherever its point of origin. In many of these cases operation is futile, but it should be attempted because it is impossible to distinguish before opening the abdomen between the operable and the inoperable cases. If the infection is localized in any one portion of the bile tract or the liver, the chances of success are good, while if there are multiple biliary or peribiliary abscesses, failure is certain.

3. Empyema of the gall-bladder might properly be considered under the second heading but is placed here in conjunction with hydrops of the gall-bladder, both being subsequent to occlusion of the cystic duct. With the empyema the indication for operation is absolute while it is not so clear with the hydrops.

4. The development of either a localized or generalized peritonitis is an indication for operation. It is not necessary to discuss here either the pathogenesis of the peritonitis or its symptoms. A generalized peritonitis is indication for immediate operation, while with the localized inflammation the indication is neither so absolute nor so urgent. The danger of the local process lies rather in its remote than in its immediate effects. The list of possible remote effects of the local peritonitis would be long and such examples as obstinate abdominal pain, pyloric stenosis, obstruction of the intestines are sufficient for illustration.

5. Obstruction of the common duct with resulting jaundice. There can be no question of the absoluteness of this indication. The destructive changes in the liver and the intoxication of the organism as a whole with the bile make relief of the obstruction imperative. The only point for discussion is the length of time we should wait before admitting that the jaundice is permanent. If after eight or ten weeks the obstruction persists, there is little use in waiting longer, although there are numerous instances in which the obstruction was spontaneously relieved even after a much greater period than this. These cases are not desirable subjects for operation because of the hemorrhagic diathesis often resulting from the prolonged jaundice and often requiring a preliminary treatment with gelatin or calcium chlorid to increase the coagulability of the blood.

6. Obstruction of the intestines. It is perhaps inappropriate to include this among the indications for surgical treatment, for in the great majority of cases there have been previous to the onset of the symptoms of ileus, no symptoms of gallstones and the case is not recognized as one of gallstones until the operation shows the cause of the obstruction. Stones large enough to cause intestinal obstruction can not escape through the ductus choledochus and must make their way from the gall-bladder by unnatural passages, by fistulæ between the gall tracts and the intestines. The establishment of such fistulæ is accompanied by no peculiar symptoms. In 92 observations collected by Lobstein, there were but 17 in which the symptoms of the occlusion were preceded by symptoms of gallstones. Of the cases collected by Lobstein, 61 were not operated upon and 31 died; of the 31 operated upon, 19 died. These figures about agree with those of Naunyn, who states that 50 per cent. recover spontaneously. Although these figures indicate a higher mortality in those operated upon than in those not, it is clear to my mind that all cases should receive operation as soon as their nature is recognized. If this is done the mortality falls to a low figure.

7. Fistulæ may be established between the bile tracts and a large number of the organs. Some of these are to be regarded as beneficial, while others, such as the cutaneous fistula, are both an inconvenience and an injury and should be relieved as soon as possible by surgical means.

There has recently been an addition to the list of sur-

gical indications, namely, the development of the fat necrosis. I have no doubt that, now that our attention has been drawn to this effect of gallstones, we will see and recognize antemortem a rapidly increasing number of cases. As the number increases, the clinical picture will become clearer and better characterized. When recognized the indication is imperative.

Mention might also be made of the cancer of the gall-bladder found with gallstones. The question is still open as to which causes the other, assuming that there is a causal relation between them. Should the possibility of cancer resulting from gallstones be an indication for operation? When one compares the great frequency of the stones with the infrequency of the primary cancer of the gall-bladder, there seems no reason for so radical a position. It seems to me more radical than the hysterectomy as a prophylaxis against cancer of the uterus.

Lastly, we must refer briefly to the general plan of treatment of patients who, because of the mildness of their symptoms, the presence of some other disease of more serious moment than the gallstones, or because of the failure of relief after mechanical means have been tried, are to be put on medical treatment. Let me, however, in passing insist upon more careful attention to all the other viscera in cases of this sort than is often given. All too frequently the patient's heart or kidney is irreparably injured in the effort to relieve the gallstones and the patient left in a far worse condition than before and with his life materially shortened. Look out for nephritis, myocarditis, arteriosclerosis, diabetes and lipomatosis.

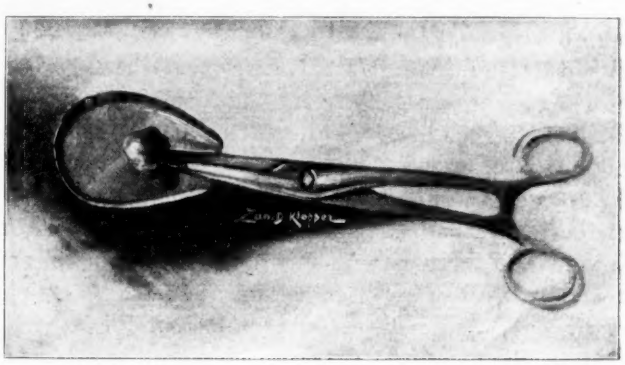
So far as the medical treatment is concerned, we may dismiss as futile efforts to dissolve stones which are already formed. Calculi are not highly soluble in the test tube and anything we may give by mouth is not likely to dissolve them in the gall-bladder. If any of the various methods which have been tried with this idea in mind have succeeded there is no evidence to that effect. Our efforts must therefore be directed toward preventing the formation of additional stones and the relief of troublesome symptoms. With the first indication in mind we must recall the two essential conditions for the formation of calculi, stagnation of the bile and a lithogenic catarrh of the biliary mucous membrane. We must lessen the stagnation and the inflammation of the mucous membrane. The patients should be urged to give up the sedentary life they are usually leading and take a reasonable amount of outdoor exercise. If they are wearing their clothing too tight or lacing with corset or string, they should be shown the error of their ways. Massage is often a useful adjuvant, although personally I see no use and only possible harm in efforts at massage of the liver and gall-bladder as is advocated by some. A wide variety of diets have been planned and include all sorts of extremes. The best diet is a simple, well proportioned one, taken regularly and rationally and in as small quantity as is compatible with the maintenance of nutrition. Every effort must be made to keep the gastro-intestinal tract in the best possible condition both for the effect this has upon the stagnation of the bile and upon the catarrh of the gall-bladder. In this way the circulation through the mucous membrane is improved, favoring recovery from the existing catarrh, increasing the resistance to new infection and other causes exciting inflammation. The diet and the exercise are probably the most important factors in accomplishing these purposes, but there is also a long list of drugs which have proved themselves useful adjuvants in cases of this sort. Prominent among these are the various mineral waters and salts. Carlsbad, Epsom, Glauber and others of similar character, mercurials, salicylates and the various gastro-intestinal antiseptics are all used. So far as the treatment of the colic is concerned I think that nothing need be said except to draw attention to the danger of the formation of the morphin habit if the attacks are frequently relieved by this drug. In some cases, indeed, this gallstone morphinism becomes an indication for operation. The truth of the matter, however, is that any patient having attacks of colic so frequently that there is any danger of morphinism, furnish in the attacks sufficient indication for the adoption of mechanical means.

New Instrument.

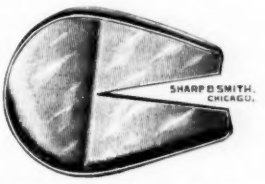
THE PILE SHIELD.

V. PLETH, M.D.
CHICAGO.

It has often happened, even in the best hands, that the patient has been severely burned, when the ordinary clamp and cautery method has been employed in the operation for piles, causing the surgeon no end of annoyance. To avoid this, I have devised a little instrument that eliminates such acci-



dents; this instrument is small, inexpensive, portable, easily sterilized and does away with the expensive pile clamp and protecting gauze pad. It is an oval-shaped, nickel-plated brass plate, 2½ by 2 inches, with the edges turned up, except at the lower portion, which has a narrow slit for the purpose of slipping it behind the forceps that grasps the pile mass. In using it the rectum is thoroughly dilated with a rectal speculum,



the protruding pile mass grasped by an artery forceps and an ordinary hysterectomy forceps (Ferguson flat-tipped forceps is admirably adapted) is made to grasp around the base of the pile mass, so that the axis of the forceps is parallel to the axis of the gut. The first forceps is removed and the shield slipped over the pile mass behind the clamp. The cautery in any form is now employed to burn the pile mass away. On account of the elevated rim of the shield, the cautery can not slip over and touch the surrounding skin.

Salicylic Acid in Strawberries.—Portes and Desmoulières have succeeded in isolating crystallized salicylic acid from strawberries. The *Gaz. Méd. Belge* of March 13 mentions this curious fact and observes that it is important in the study of adulterating substances in preserves, syrups, etc., containing strawberries.

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ROENTGEN RAYS IN THERAPEUTICS.

Electricity has always been a field for the sanguine therapeutist and too often a disappointment to the conservative judicious practitioner. High hopes raised by flattering reports of its efficiency have been again and again overthrown by the hard lessons of actual experience and some, like a distinguished German neurologist, have even gone so far as to hold that in the vast majority of cases its good effects have been merely those of psychic impressions, thus practically relegating it to the class of suggestive medicine. Methods of its employment—the Apostoli treatment for myomata for example—have been a temporary craze, to be almost entirely forgotten in a very few years. When d'Arsonval showed some years ago that currents of very high potential might be used on human beings with perfect safety, hope ran high for the eventual discovery of effective electrical treatment. It proved as disappointing as all previous methods of using electricity in medicine. As Prof. Osborn said recently with regard to biologic problems generally, "Life rarely acts according to the reasoning of the closet philosopher. Out of the careful observations of the unexpected, however, is come the *rationale* of the life processes." It may easily be that the pendulum has swung too far in this direction of skepticism, but the effect is the same and the distrust of high claims for new methods of utilizing electricity and allied agencies is the rule with the conservative portion of our profession.

Perhaps it is a good sign that it is now five years after the introduction that the therapeutic effect of the *x*-rays is beginning to be one of the most prominent features in the medical and surgical horizon. There seems some reason for hope from recent reports of conservative observations that this form of radiant energy is not to prove as disappointing therapeutically as have other forms. The morbid effects of the *x*-ray exposures on normal tissues and the precancerous keratosis, observed by Johnston,[1] are suggestive of a similarly hostile action on therapeutic utility. The favorable results reported by Pusey, Allen, Rinehart, Lee and others here and abroad seem to point to a real value of these rays in a large number of cases of malignant disease, and the testimony is increasing. Dr. Pusey's paper in the present issue gives an encouraging, but still a very conservative view of the possibilities of *x*-ray therapeutics. A like encouraging note has prevailed in quite recent articles by Morton, Hopkins and others, and notably in the discussion of a paper by Dr. F. H. Williams[2] read at the meeting of the New York Academy of Medicine, March 6, 1902.

We are probably just entering on a period when *x*-rays will be extensively used in the treatment of many forms of disease. It is important, then, to realize the limitations and the possibilities of the new therapeutic agent as far as possible. Dr. Coley, at the meeting of the New York Academy of Medicine mentioned, pointed out one of the limitations. In his experience the *x*-rays do not favorably affect rapidly growing malignant tumors at all. Sarcomata, especially those of the round cell variety that so often take on luxuriant neoplastic activity, seem not to be inhibited in the slightest even by long and daily exposures to the *x*-rays. (On the contrary, Pusey reports a rapidly growing round-cell sarcoma which subsided with marked rapidity under *x*-rays.) Other more slowly growing sarcomata are very frequently not only inhibited in growth but induced to take on a shriveling process that leads to their ultimate disappearance. This is true at times, even after a series of operations, when the neoplasm has become absolutely inoperable and death seems inevitable.

In Dr. Williams' experience no external malignant tumor has failed to be benefited by exposure to the *x*-rays. Even in cases where extensive involvement of deep-seated tissues rendered all hope of permanent cure futile and where the progress of internal symptoms showed that the deeply situated process continued to spread, the superficial neoplastic tissues were always favorably affected, the odor of discharges was rendered less intolerable and the discomfort was considerably lessened. The most striking feature of the employment of the *x*-rays by all has been the lessening of the pain associated with the malignant conditions. In cancers *en cuirasse* where the chest was imprisoned as in a vise to the constant intense discomfort of the patient, relief was afforded almost immediately after exposure. In the extremely tender cancers of the breast in which even the weight of clothing becomes insupportable, this exaggerated sensitiveness can be made to disappear. Even the painful conditions associated with cancer of the stomach are assuaged and in some reported cases the patient has been able for a time at least to once more take nourishment.

It would seem, then, that the *x*-rays may be resorted to in all inoperable and painful cancers. Further, in recurrences after operation for cancer, the malignant nodules are often so close to the surface that they form an especially favorable subject for *x*-ray treatment. It is in these cases that the most satisfactory results have been obtained. With regard to superficial epitheliomata the question comes up—shall they be treated by surgical intervention or by the *x*-rays? In any case it is evident

1. Brooklyn Med. Jour., February, 1902.

2. See page 959 in this issue.

at the end of two weeks whether the *x*-rays will be of benefit or not. This is not too long a delay to ask before having recourse to the knife. As in the doubtful cases where there is a suspicion of syphilis the therapeutic test of specific treatment is applied, so in the cases of epitheliomata the possible benefit of *x*-ray treatment should be sought.

Notwithstanding all these remarkable results and the very evident indications from the same, the therapeutics of the *x*-ray is yet in its infancy and a wise conservatism is advisable as regards its future. The promise so far is the brightest, but there is much yet to be learned both as to its possibilities and as to its limitations. With care the exact value of the *x*-rays for malignant disease can be determined without any of the unseemly over-enthusiasm and consequent reactionary disappointment that has characterized the introduction of every new therapeutic agent of any promise during this last quarter of a century. Let us hope that the dignity of the medical profession will not in this matter be compromised before the public as it has been so often under similar circumstances in the past.

HUMAN STIRPICULTURE.

The number of articles proposing the prevention of propagation of defectives indicates a widespread interest in problems of improving the human stock. It is apparent that permanent segregation of every individual who may easily be recognized as physically or mentally unfit to be a parent is too great a task for state resources, while permanent seclusion of moral defectives is quite out of the question. The consequence of these conditions is that individuals whose offspring will surely either actively or passively prey on society are allowed to keep on propagating even though they are returned time and again to institutions and secluded. Since temporary segregation is a failure in keeping down the birth-rate of perhaps our worst class of citizens, it is proposed to surgically asexualize by vasectomy or by ligation of the Fallopian tubes those whose progeny are certain to be a menace to society. Already some legislative bodies have taken up the subject and in the future medical men will find themselves called on more and more to express opinion about the value of these measures.

Judgment on the efficacy of this method of ridding the world of degenerates must be formed in the light of many practical considerations. Especially to be remembered is the fact that the biologic forces of degeneracy are always at work even in the best stock. If every existing defective were prevented from producing offspring, yet in the next generation there would be a new crop of degenerates springing up from sources now considered within the pale of mental and physical fitness.

But this problem of the betterment of the human breed has been recently taken up from an entirely different standpoint by Francis Galton, who for a generation past has been a recognized authority on heredity and inheritance. In the last Huxley lecture,[1] Galton took for his subject "The Possible Improvement of the Human Breed under existing Conditions of Law and Sentiment," calling attention to the nobility of enthusiasm for bettering the human stock. He is very optimistic about the practicability of a movement in this direction, but says that "the possibility of improving the race of a nation depends on the power of increasing the productivity of the best stock. This is far more important than that of repressing the productivity of the worst." Prevention of the birth of children among the worst classes is, to be sure, a commendable object, thinks Galton, but yet the tremendous social and industrial value of an individual of the best class so overbalances the worthlessness of a defective that it is clearly most economical to spend our efforts in getting just these best individuals into the world. Now, the laws of heredity are so well established that surely the most excellent results would obtain from picking out, if such a thing were practicable, young men and women with a view to their ability to produce worthy children. They should then be urged to marry each other at the earliest suitable age and beget a number of children compatible with healthy production and development. As it is at present, many of our best young people refrain from marriage until the childbearing powers are on the wane, because the man is often struggling for a competency and the woman meanwhile is pursuing aims quite unworthy in comparison with the production of fine children.

Galton thinks that medical men might take a large part in determining the fitness of individuals for marriage and in teaching the best that is known about the production and bringing up of offspring. They, in connection with other professional students of the subject, might even give diplomas of especial fitness for marriage so that financial aid might be occasionally offered under properly managed patronage. He acknowledges his plan to be rather Utopian and such, certainly, seem some of the details. The general idea, however, of drawing attention to the racial need of progeny from the best stock can not be commended too strongly. From the days of Lycurgus it has often been pointed out that we do less for the human family in this respect than we do for domesticated animals. Galton does good service in pointing out the rational economy of concentrating efforts for race improvement on the means from which the greatest returns can be expected. There must be radical changes in our social ideals and in our conceptions of the motives for marriage, however, before his suggestions can be put into practice.

SHORT CUTS INTO THE MEDICAL PROFESSION.

A rather "practical" contemporary devotes a leading editorial in a recent issue to night medical schools, the same being really an attack on the more modern systems

1. Popular Science Monthly, January, 1902.

of medical education. We have no quarrel with night medical schools provided that they carry out what they usually propose to perform; they meet a certain need and furnish, under decided disadvantages it is true, a medical education to those who are unable to give their whole time to their medical course. Their graduates may be to a certain extent prepared; they can pass state examinations, and make up later for the handicap with which they start. A man who will honestly devote his evenings till late in the night to study, laboratory work and other accessories of a medical course after a day's exertion in some potboiling occupation ought to be one of more than ordinary resistance to fatigue and capacity for work and, if his strength and health hold out, these gifts will tell in his future career. Such a one, however, will always regret that his advantages were so limited, unless indeed he is one of those so-called self-made men who have no appreciation of the true relations of things and are ever lost in self-wonder and love and praise of their makers.

What we object to in the editorial alluded to, however, is not so much its defense of night medical schools, which nevertheless is overdone, as its disparagement of modern medical education; it denounces the latter as superfluous in details, tending to useless memorizing and neglecting the training of the understanding and judgment in practical clinical lines. It says "twenty-five years ago men were turned out of medical colleges sounder thinkers, healthier reasoners and more hard-headed practical men at the bedside than they are to-day from our greatest medical colleges, though they had not memorized as extensively as do the present graduates." If this is true our civilization is getting played out. When one compares the old two-course system of the same lectures over and over again, class after class, that was in vogue twenty-five or thirty years ago, with the laboratory work, graded lectures, and all the other modern requirements of a medical course, to say nothing of the greatly enlarged clinical facilities of a modern medical college, the talk about mere memorizing seems ridiculous enough. It appears, however, to be thought a good enough argument for the "practical man." This, we believe, is an error; those who have striven against disadvantages and won a deserved, not a fictitious, standing in the profession do not glory in their early deficiencies, but regret them.

There has been a great increase of medical knowledge during the past quarter of a century and the student of medicine has to keep up with it. Our present methods of education may not be perfect, but they are an earnest effort to meet the needs of the times. Education has always been, as Mr. Dooley says, something to be fought for and one has to pull it out of its hole by the hair of its head. This was true in the past and still more so in the present, and the honest medical graduate of to-day, if he has had more facilities, has also worked harder and has earned more fully the right to care for the health of his fellow-men than had those of twenty-five years ago. It is not only right but a duty to discourage short-cuts into the medical profession, and so far as any kind of schools have this aim they deserve only condemnation.

THE SIGNIFICANCE OF THE HEMOLYMPH GLANDS.

The blood has always been the object of intense interest to all thinking persons and especially to medical men. Of the various and complicated activities that take place in the lymph glands, the spleen and the bone marrow the most striking and apparently one of the most important is the formation of the various blood corpuscles.

Recently attention has been directed again to certain hitherto rather neglected lymph glands with distinct blood sinuses which seem to occupy intimate relationship to the other blood-forming organs. In this country, Warthin of Ann Arbor has made these hemolymph glands the subject of extensive investigations[1]; and simultaneously investigators in Germany and in Italy have published articles on the same topic. Warthin recognizes two structural types of lymph glands with blood sinuses, namely the splenolymph glands and the marrow-lymph glands, the former being the more numerous and related structurally and functionally to the ordinary lymph glands on one hand and the spleen on the other, while the marrow-lymph glands stand between the common type of lymph gland and the lymphoid marrow of bone. He believes that normally the hemolymph glands are concerned chiefly with the formation of leucocytes and with the destruction of red corpuscles, but under diseased conditions the hemolymph glands undoubtedly take on full blood-forming functions.

These conclusions are based on the study of human hemolymph glands under various conditions. Morandi and Sisto[2] reach contrary conclusions. In the first place they note that hemolymph glands occur (man, dog) quite constantly in the same regions as the ordinary lymphatic glands, from which they are distinguished macroscopically by their smaller size and redder color, and microscopically by containing globuliferous and pigmentiferous cells in blood sinuses. These authors do not appear to recognize the marrow-lymph gland of Warthin as a separate variety. They hold that hemolymph glands are concerned with the destruction of red corpuscles and do not take on hemoblastic activity. When the spleen is removed the number of pigmented cells and cells containing red corpuscles is greatly increased in the hemolymph glands; and when hemolytic substances are given splenectomized animals these appearances become more pronounced, being in fact quite intense. But they did not find nucleated red corpuscles

1. Boston Journ. Med. Sciences, April, 1901 (reviewed editorially in THE JOURNAL A. M. A., May 25, 1901, 1478); Journ. Med. Research, July, 1901; and American Journal of Anatomy, November, 1901.

2. Archivio per le Scienze Mediche, 1901, xxv, 397-434.

or giant cells in the hemolymph glands either under these conditions or when they produced so grave an anemia that blood pigment appeared in the urine. In other words they pointedly announce their belief that the hemolymph glands have no erythroblastic powers.

No doubt this contradiction of results will stimulate to renewed study of the structures in question, and those who know of Warthin's accuracy in morphologic study will feel no hesitancy in expressing the belief that his observations will stand the test of further inquiry.

COMMERCIALISM VERSUS SANITATION.

The Paris tradesmen have a new peril to their business welfare and are crying out against the sanitary legislation. It seems that the medical profession is fairly well represented in the French House of Deputies, there being some fifty of our confrères among its members. The result has been that the attention of the chamber has been drawn to certain commercial practices on the part of food purveyors to the public and remedial measures proposed. Moreover, the same influences appear to be acting unfavorably to some of the tariff regulations that work to the profit of the home dealers and the result of all this is the demand at last that medical men and hygienist experts shall be excluded from the legislature. They charge the medical "amateur legislators" with spreading false official reports as to the adulteration of food, intended to ruin the business of the dealers, and assert that any doctor who leaves his practice to become a deputy is *ipso facto* a quack. It is the same old story, commercialism against sanitary reform which is being fought out as it has always been. At present Paris is following San Francisco, but the latter has still a good lead.

THE DANGER FROM SURGERY.

The perils of only the most trivial injuries in surgery are well emphasized by the recent death of Dr. Middleton of Davenport, Iowa, referred to in our obituary columns, and the very critical condition of the surgeon who assisted him in the operation. In neither case was the wound which caused the septicemia more than barely noticeable. Even the least abrasion may be fatal with specially virulent infections and one can never be sure that he is not in the presence of such in an operation. In this instance the condition of the operator's system can hardly be credited with much influence as a factor. Both operators became infected and the rapidly fatal progress in one and the threatening condition in the other indicate that it was the special nature of the poison that was alone effective. Surgeons run so many chances without injury that they are liable to forget that in some particular case they may meet with a virus that is overwhelming in its virulence. Even the utmost precautions may not always be a safeguard; it is not known that they were neglected in this case. It is a reminder, such as we have from time to time, that our profession has its special perils from which all our enlarged acquaintance with germs and their toxins can not always save us.

THE PHYSICIANS' HONORARIUM IN PRESIDENT McKINLEY'S CASE.

For several months the newspapers have been printing absurd stories regarding the bills sent in by the physicians and surgeons in attendance on the late President McKinley. Some of these stories were so obviously fictitious that no one who had given the matter thought could believe them. We have been told that the total amount of the bills would figure up to $250,000 and from this down to one-fifth of this figure. Unjust comments on these estimates and unpleasant and caustic criticisms, based on ignorance, have been indulged in and an impression has been created in the public mind that we are to have a repetition of the Garfield experience of large claims and extensive cutting down in the Congressional appropriations. President McKinley, while in the line of his duty, was shot by the assassin Czolgosz, and the expenses of his treatment are therefore properly a public charge and it would have been entirely within the limits of professional ethics and propriety had the attending surgeons presented bills proportionate to the responsibility they incurred. We are authorized to state, however, that as a matter of fact the physicians and surgeons have sent in no bills, have made out no bills, and have fixed no charge in bills for their service. They have declined positively to send in any bills. The question of compensation must be settled entirely apart from any statement made by the physicians and surgeons. We hope this statement will be sufficient to settle all questions in regard to the matter. Whatever amount is paid to the gentlemen who have assumed the responsibility must and will be settled by Congress when and in what manner its judgment may dictate.

IATROPHOBIA.

There is a little magazine published by the New England Antivivisection Society called *Our Dumb Animals*. Just why it bears this name is hardly indicated by the contents of its latest (March) number, which is mainly given up to attacks on vaccination. Indeed, other samples of the publication have impressed us with the fact that its management is more interested in fighting the medical profession than in benefiting any class of living beings, dumb or otherwise. What it says does not seriously hurt us; attacking vaccination, for example, is like denying the eternal verities, but we regret to see the spirit and the mental idiosyncrasies that prompt these utterances. Indeed, we can only charitably account for the temper and moral obliquity shown, by assuming a sort of psychic failure on the part of these antivivisectionists. What shall we say of the mental condition of a writer of a recent article in a popular magazine who seems to think that he has unanswerably demonstrated that the same reasons that justify the sacrifice of the lower animals would be valid for that of human infants? The dog, he says, is equal in intellect to the child one year old, is equally susceptible to pain and in point of love and affection much the superior of the two! He asks: "Why not vivisect the child as well as the dog?" The trouble with these antivivisectionists is that they do not seem to be able to appreciate the difference between a man and a dog—they have lost their

human point of view and take, we may say, a general bestial view of things! Following, however, the usual evolution of systematized insanity the persecutory delusions have developed into an aggressive phase; their journalism has become affected with an active iatrophobia—to coin a word for this form of mental aberration—the dumb animals are in the background. The stage of megalomania may next be looked for; like a certain well-known character in fiction, they will set up an image of themselves and call it the divine nature and demand that we shall all bow down and worship. It is a pity and a shame that a morbid and narrow zoöphily should thus masquerade under the name of humanity and so possess its followers as to lead them to oppose in various ways the best interests and even the temporal salvation of their own kind.

SCHOLARS AND THEIR REWARDS.

In his recent article entitled "Some Noteworthy Scholars,"[1] Daniel C. Gilman, formerly president of the Johns Hopkins University, emphasizes that "the merit of a university, in the long run, depends upon the men who are called upon to conduct it." In the course of the organization and development of the university at Baltimore, Mr. Gilman came into familiar relations with many noteworthy scholars who came to the university as guests and delivered open lectures on various subjects. As he recounts in a charming manner some of the peculiarities and traits of the scholars he has known, we meet with the following splendid estimate of the services of scholars: "They and their peers, at home and abroad, are the men by whose learning, investigation and publications, society is carried forward. The world applauds the heroes of great struggles, and it does so rightly; it showers its plaudits upon the great orator; it witnesses, breathless, the achievements of surgeons; it calls our times the age of electricity; and yet it is prone to forget or overlook the hidden workers in the laboratory and the library, the quiet men who are the necessary precursors of those who are devoted to the application of knowledge. It underpays them while they are in service; it rarely thinks of providing pensions for their advancing years, or of giving stipends to their families when premature death interrupts activities; the honors it bestows are the empty privileges of placing after their names a few letters of the alphabet in order to show their academic rank. The world knows little, until they are ended, of the anxieties that harass the scholar when he thinks of his future life—I mean his future life here below; it cares nothing for his family. But these quiet men of the desk and the den, of the pen and the book, of the balance and the lens, are they who have kept alive the traditions of literature and extended the bounds of science." It is interesting to note that Mr. Gilman is very careful to emphasize in this manner the investigative side of medicine and to contrast it with the more spectacular. And the truth of his remarks can not be questioned by any one at all familiar with the situation. The rewards open to real investigators and scholars in the various fields of medicine in this country are indeed so insignificant as yet that undoubtedly many young men of splendid gifts for such work are forced into purely practical lines. As head of the recent Carnegie Institution in Washington, Mr. Gilman has a good chance to put into actual practice his ideas about pensions for investigators and stipends for their families.

1. Scribner's Magazine, April, 1902.

FUNCTIONAL ALBUMINURIA.

During the last few years much has been written on the subject of albuminuria without demonstrable disease of the kidneys. Most cases of this sort are properly "cyclic" albuminuria; the albumin is absent upon rising in the morning, appears after breakfast and is usually not present late in the day. It is not influenced by diet, and may even be absent after active exercise. Postural albuminuria is not inaptly applied to this condition. The majority of the cases in persons who are supposed to be in perfect health and in whom no organic disease can be found are discovered accidentally. In many instances life-insurance examinations are instrumental in disclosing the condition. The discussions as to the relation such albuminuria bears to life-expectancy are of little value, as they are based largely upon theories and the conclusions are drawn by men who are apt to give the favor of a doubt to the insurance company. The conditions which underlie the passage of the albumin into the urine are unknown and until these are understood, no rational prognosis is possible. As noted by Mendel and Hooker,[1] in the interesting report of a typical case, all attempts to refer the disappearance of the albumin when the subject is in a horizontal position to attendant circulatory changes in the kidneys is no more than an interesting speculation. If urine contains not only small amounts of albumin, but also renal tube-casts, especially other than a few hyaline ones, the condition is one of nephritis, and not of "cyclic" albuminuria. Because albuminuria is intermittent, it does not follow that it belongs among the variety under discussion. In nephritis the amount of albumin in the urine is also apt to be less in the morning before assuming the upright position, and where there is little albumin it may even be entirely absent at that time of day. The only way to learn what ultimately becomes of these cases is by intelligent observation of single examples through a long period of the life of the subjects and by postmortem examinations of the kidneys. If medical men who accidentally find themselves the subjects of functional albuminuria would make regular and careful observations of their own cases during the continuance of the albumin and publish the results, it would help very much to place us in a position of knowing what is to be expected. Physicians who are so situated as to be able to keep cases under observation for years or during life, would contribute something of value to medicine by studying and reporting them. When the results of such collective investigation is obtained, an intelligent prognosis can be made and a suitable therapy instituted. A sufficient number of cases have been reported to show that functional albuminuria is not infrequent; hence what is most needed is information as to what actually comes of them. It would be wise to watch the condition of the kidneys with more than usual care whenever acute disease or pregnancy occurs.

1. Journal of Experimental Medicine, Oct. 1, 1901, 647.

Medical News.

DISTRICT OF COLUMBIA.

The District's Morbidity and Mortality.—For the week ended March 27 there were 128 deaths reported, a death-rate of 22.7 per 1000 per annum. Brain disease caused 18 deaths and consumption 17. During the week 7 new cases of diphtheria, 4 of scarlet fever and 3 of typhoid fever were reported.

GEORGIA.

Militia Change.—Dr. Benjamin W. Bizzell, Atlanta, has been appointed captain and assistant surgeon of the Fifth Regiment, G. S. T., vice Dr. Edward C. Davis, resigned.

Medical Association of Georgia.—The preliminary program of the fifty-third annual session of the Medical Association of Georgia, to be held in Savannah, April 16, 17 and 18, shows 52 titles.

Bethesda Medical Staff.—The staff of the Bethesda Orphanage, Savannah, for the current year is composed of Drs. William E. Fitch, Arthur A. Morrisson, George L. Harman and J. O. Cook, each of whom has a service of three months.

Graduating Exercises.—The Medical Department of the University of Georgia, Augusta, held its graduating exercises, April 1. The graduating class numbered 46. The diplomas were presented by Chancellor Walter B. Hill. Dr. Theodore E. Oertel delivered the address to the graduating class and the dean announced the honors and hospital appointments.—— Atlanta College of Physicians and Surgeons graduated a class of 130, April 4.

ILLINOIS.

Chicago.

To Russia Again.—The Secretary of State has appointed Dr. Nicholas Senn a delegate to the seventh international conference of the Red Cross, to be held in Moscow, May 16 to 29. Dr. Senn leaves for Moscow, April 29.

Undertakers Suspended.—Health Commissioner Reynolds has suspended the licenses of two undertakers, Bernard McNeil, 2915 State Street, and Jacob Weinstein, 264 West Fourteenth Street, on charges of carelessness and violating the rules laid down for the interment of the bodies of scarlet fever patients.

Semi-Centennial of Chicago Medical Society.—The Society celebrated its semi-centennial by a banquet at the Auditorium, on the evening of April 9. Dr. N. S. Davis, its founder, addressed the 300 physicians present; Drs. McAnally, Billings and Danforth also spoke. Dr. Victor C. Vaughan read a paper on the "Etiology and Spread of Typhoid Fever." A fuller account of the banquet will be given next week.

Thousands for Charity.—The German-American Charity Association has obtained donations amounting to $12,000, which will be distributed among the following charities: Alexian Brothers' Hospital, German Hospital, St. Elizabeth's Hospital, Chicago Maternity Hospital, Home for Destitute and Crippled Children, Visiting Nurses' Association, Chicago Orphan Asylum, and five non-medical charitable institutions.

Death-Causes.—Except from convulsions, pneumonia and scarlet fever, deaths from all the principal causes of death showed a decrease last week. The total deaths reported, 496, indicate a reduction of 8.9 per cent. from the previous week's mortality, but the rate is still 6 per cent. higher than that of last year. The death rate per annum per 1000 was 14.19, as against 13.37 for the corresponding week of 1901. There were but half as many deaths from diphtheria as the week before, and but one death from typhoid fever—the least since June, 1901.

Rush College Co-Educational.—The senior and junior years of Rush Medical College will be open to women after July 1. This means co-education in all classes of Rush. Women have been admitted to the first two years since last fall, when the first two classes were moved to the University of Chicago. It is expected that fifty women will take advantage of this change and be found in the upper years of Rush by next fall. Among them will be a delegation from Northwestern Medical College, which has barred women. There are twelve women in the work of the first two years of Rush at the university.

Post-Prandial Plans.—A few months ago, after a banquet, it was announced that a large sum of money would be given for the erection of the finest medical college building in the world and its endowment, the beneficiary being a college which offers to teach "pathies" of all kinds. At a second banquet, held April 2, a similar announcement was made, but the speaker was still not at liberty to mention particulars. Although the property for the site has not yet been bought, the sanguine projectors have already planned that their "Chateau en Espagne" shall be a $500,000 reality within eighteen months.

Scarlet Fever Prevalent.—Scarlet fever has been for some months and still is more prevalent and more fatal in Chicago than at any time in the last seventeen years. Since the first of the year there have been 167 deaths reported from this disease out of a total of 7318 deaths from all causes—a proportion of nearly 2.3 per cent. The nearest approach to this was in 1884, when the scarlet fever mortality formed nearly 2.5 per cent. of the total. Last week there were 243 cases of the contagious diseases reported, of which number 162, or exactly two-thirds, were scarlet fever. During March 644 cases were reported as against 156 in March, 1901.

INDIANA.

Hospital Dedicated.—St. Edward's Hospital, New Albany, was dedicated with appropriate ceremonies, April 8. It is to be under the charge of the Sisters of St. Francis.

Magnetic Healer Jailed.—On account of his refusal to furnish bail for his appearance, Charles L. Gilmore, a "magnetic healer," against whom five affidavits have been filed for violation of the state medical law, has been committed to jail.

Galileo Redivivus.—Last week an Indianapolis physician, after having been fined $10 for failure to report cases of smallpox to the local health board, pleaded guilty and then declared that he was still of the opinion that the cases were chickenpox.

Fort Wayne Medical Graduates.—The commencement exercises of the Fort Wayne College of Medicine were held, March 25, when degrees were conferred on a class of nine. After the graduating exercises, the Alumni Association sat down to its annual banquet.

Dr. Eastman's Illness.—The condition of Dr. Joseph Eastman still continues to be serious. His health has been failing for several months. During the last two months his condition has changed for the worse. The disease is abdominal and a positive diagnosis has not yet been made. He has been very brave and patient throughout his illness, and in this may lie a hope for his ultimate recovery.

Doctor Sues Doctor.—Dr. Francis Kelly, Vincennes, has filed suit for $1000 for professional services rendered Dr. Welcome B. Sprinkle, Oaktown, in the past two years. In the complaint Dr. Kelly claims that he cured Dr. Sprinkle of an affliction of the foot, thereby enabling him to resume the practice of medicine, and that when he proffered his bill for $1000 Dr. Sprinkle refused to pay him.

Indiana Medical Journal.—At the annual meeting of the stockholders the old board of directors and all the old officers were re-elected. Dr. Alembert W. Brayton will continue as editor, and Dr. George J. Cook as business manager. The directorate includes Dr. Lewis C. Cline, president; Dr. Hugh M. Lash, secretary; Dr. George J. Cook, treasurer; Dr. William N. Wishard, Dr. Joseph O. Stillson, Dr. Lehman H. Dunning, Dr. John H. Oliver and Dr. Hugo O. Pantzer.

IOWA.

University of Iowa Commencement.—At the thirteenth annual convocation of the State University of Iowa at Iowa City, April 1, forty graduates in medicine were given their diplomas by President George E. McLean. The address of the evening was delivered by President S. B. McCormick, of Coe College.

Davenport's Deaths and Diseases.—The annual report of City Physician Charles H. Preston shows a death-rate for 1901 of 15.03 per 1000. There were 530 deaths, of which 60 were caused by tuberculosis, 18 by pneumonia, 10 by nephritis, 25 by cancer, 9 by insulation, 17 by accident, 8 by suicide and 2 by homicide. During the year 1039 cases of infectious diseases were reported, with 31 deaths.

Regulation of Osteopathy.—A committee of the House of Representatives has reported to that body a bill which requires that the present state board of medical examiners shall issue certificates to osteopaths who have had at least twenty months' study in an accredited school, and who have passed an examination in all the sciences required for doctors in Iowa. The bill

contemplates that in all respects osteopaths must be qualified to diagnose diseases and be competent to practice medicine. The diplomas of osteopathic colleges will be recognized only for the one branch of osteopathy.

MARYLAND.

The Medical Journal Club held its annual banquet at the Hall of the Medical and Chirurgical Faculty, April 5, Dr. Henry M. Thomas presiding.

Dr. Martin B. Billingslea, retiring president of the Northwest Baltimore Improvement Association, was presented with a handsome silver loving cup by the association, April 1.

Expectoration Arrests.—Arrests are being made for spitting in the street cars of Baltimore, and the Health Commissioner declares that he will see the law upon the subject enforced.

Frederick City Hospital will be opened about April 15. It has been built at a cost of about $9000, and contains 3 wards and 16 private rooms, in addition to the operating and service rooms.

Doctors Elected.—At a meeting of the Society of Colonial Wars, at Baltimore, April 1, Dr. Bennet B. Browne was elected historian, Dr. Walter B. Platt, surgeon, and Dr. Christopher Johnston, member of the council.

Graduates and Undergraduates.—There are 256 students pursuing the regular course for the degree in the Medical School of the Johns Hopkins University and 34 graduate students registered for special courses.

Personal.—Dr. Arthur D. Mansfield, Baltimore, will sail for Europe, May 1, to visit English and continental hospitals.——Dr. W. B. Morrison was appointed physician to the Washington County Jail, succeeding Dr. H. S. Herman.

Correction.—Referring to the death of Dr. Elizabeth A. Darby, noted in THE JOURNAL of January 18, the dean of the Woman's Medical College, Baltimore, notifies us that Dr. Darby was not a graduate of that institution.

Deaths and Diseases.—For the week ending April 5 there were 224 deaths in Baltimore against 177 for the same period last year. Among the causes of death were tuberculosis 31, pneumonia 26, cancer 7, typhoid fever 4, diphtheria 2, smallpox 1. Two new cases of smallpox were reported. There were 43 deaths from cancer in Baltimore in March against 33 for the same month of last year. There was also a decrease of 22½ per cent. in the number of cases of infectious diseases for the same periods.

Recent Legislation.—Among bills passed by the late legislature were: 1. To amend State Board of Health law. 2. To amend medical practice act. 3. Omnibus charitable appropriation bill. 4. To regulate sale of poisonous drugs. 5. To provide for the maintenance of the Emergency Hospital at Annapolis by appropriating $3000. 6. To create a tuberculosis commission. 7. To provide for the appointment of secretary of health board of several counties. 8. To enlarge the powers of the Maryland Medical College. 9. To provide for new buildings at the Maryland Asylum and Training School for Feeble-Minded Children. 10. To authorize the erection of a hospital at Cambridge. 11. To amend the charter of the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore; and 12. To authorize the appointment of an assistant surgeon-general and a hospital corps in the Maryland National Guard. A bill to forbid vivisection was lost in the legislature, and all sewer legislation for Baltimore failed to pass on account of political jealousies.

MINNESOTA.

Leprosy.—There are 20 lepers in Minnesota, 6 of whom are isolated and 14 at large.

Pneumonia Fatal.—During March, out of the 214 deaths recorded in Minneapolis, 36 were from pneumonia.

Internes Selected.—As the result of an examination held, March 26, for the positions as internes in the City Hospital, St. Paul, Drs. W. W. Lewis, St. Paul; Adolph G. Liedoff, Minneapolis; E. A. Meyerding, St. Paul; W. M. Brown, Minneapolis, and Fred D. Rogers, St. Anthony Park, were selected, and Dr. Hugh C. Arey was appointed bacteriologist and pathologist.

Vaccination Creed.—About 150 physicians of Minneapolis have signed a statement endorsing vaccination as a preventive of smallpox. Their belief is as follows:

1. That true vaccination is an absolute preventive of smallpox.
2. That true vaccination, with pure lymph, followed by cleanliness and proper care of the vaccinated surface, never did and never will produce a serious sore.
3. That true vaccination leaves a characteristic scar that follows from no other cause.
4. That no serious effects ever follow true vaccination and that on the contrary thousands of human lives are annually saved by it.

MISSISSIPPI.

Appropriation for Asylum.—The legislature has passed the bill appropriating $127,900 to the East Mississippi Insane Hospital for two years.

Asylum Burned.—The Institute for the Deaf and Dumb at Jackson was burned, March 18. The inmates were removed without casualty. The loss is $40,000.

Columbus Board of Health.—The Board of Health of Columbus has been organized with Dr. Arthur C. Halbert as president and Dr. W. G. Brewer as secretary.

Osteopath Convicted.—An osteopath, who has been practicing in Biloxi for three months, was convicted, April 1, of practicing medicine without a license, and was fined $20 and costs. This conviction was due to the concerted action of the local profession. In Mississippi the law passed in 1896 defines the practice of medicine with absolute clearness.

MISSOURI.

Addition to Nevada Asylum.—An addition to cost $28,000 is to be erected at State Lunatic Asylum No. 3, Nevada, which will accommodate 150 patients.

License Revoked.—The State Board of Health, at a meeting held in Kansas City, April 2, revoked the license of Dr. Henry C. McFall, Mexico, charged with malpractice.

New Graduates.—University Medical College, Kansas City, held its commencement exercises, March 26. Dr. James E. Logan, president of the college, was in the chair and Rev. E. D. Morgan delivered the doctorate address. Diplomas were conferred on a class of 29.——Woman's Medical College, Kansas City, graduated a class of 6, March 24. The degrees were conferred by Dr. Nannie P. Lewis and the diplomas presented by Dr. Blencowe E. Fryer.——Kansas City Medical College conferred degrees on a class of 18, March 26. The doctorate address was delivered by Prof. F. H. Hodder, of Kansas University; the degrees were conferred by Dr. John H. Van Eman, president of the college, and the prizes were presented by Dr. Andrew L. Fulton, dean of the faculty.

NEW YORK.

Batavia Hospital.—The new Batavia Hospital, which has been erected by the women of Batavia, was opened to the public last week. The building cost about $10,000 and is free from debt.

Dr. James T. Burdick, surgeon of the Soldiers' Home at Bath, has resigned and Dr. Warren L. Babcock, St. Lawrence Hospital, Ogdensburg, succeeds him as acting surgeon. Dr. Frank H. Starr, of Bath, is appointed temporary assistant surgeon, vice Dr. Arthur P. Shellman.

Gifts to Hospital.—Kingston City Hospital has received a donation of $5000 from the Hon. Ira Davenport in memory of his mother. The income is to be used for the maintenance of a bed.——Frederick S. Flower, New York, made an Easter gift to Watertown hospital of $5000 to endow a free bed in the hospital to be known as the Mary Elizabeth Flower bed.

Medical Law Amended.—The medical law of the state has been so amended that the Regents of the University of the State may, in their discretion, admit conditionally to the medical examinations in the preliminary subjects—anatomy, physiology and hygiene, and chemistry—applicants 19 years old, who meet the other requirements. Under this amendment the regents have power to grant an allowance of one of the four years of study in a medical school to graduates of college courses, registered by them as entitled to this privilege.

New York City.

Public Expectorators Fined.—Recently 50 persons charged with violating the ordinance against expectorating in public places were brought into court, and 32 were fined $5 each.

Patient Bites Physician.—The physician of the Hotel Navarre, Dr. J. W. Gibbs, was bitten by a patient suffering from uremic convulsions, and although he immediately sucked the wound, and shortly afterward cauterized it, the finger and arm became swollen and decidedly septic.

Personal.—Dr. C. H. Catherwood, who has been engaged in studying and practicing among persons sick with pulmonary tuberculosis, has contracted the dread disease himself, and has gone with his wife to Colorado.——Dr. J. H. Girdner has been appointed by Governor Odell a trustee of the State Hospital for

Incipient Tuberculosis.——Dr. M. D. Lederman has been made adjunct professor in laryngology and rhinology at the New York Polyclinic.

Dr. **Blinn Held to the Grand Jury.**—Some years ago Dr. Francis Gray Blinn was charged with being concerned in the death of a young woman, but managed to escape the clutches of the law. He has also been in trouble because of accusations that he was practicing medicine under various aliases. In spite of these little unpleasantnesses he has apparently been able to do a thriving business, until a few days ago, when a young woman from Connecticut was inconsiderate enough to die in his "sanitarium." This new streak of ill luck bids fair to be the worst one yet, for there were some very strange doings when the parents of the dead girl came to his office, and sufficient evidence has been obtained from his nurse and others to lead the coroner's jury to hold Dr. Blinn for the action of the grand jury.

Buffalo.

The **Emergency Hospital** has been designated by the Board of Aldermen to receive city patients.

Personal.—Dr. Herman Mynter, wife and daughter sail in June for a four months' visit to Denmark, Germany and France. ——The Board of Supervisors has appointed Herman W. Johnson as medical student to have charge of the hospital at the jail.

Anti-Spitting Ordinance.—An ordinance was passed in April, 1902, known as the anti-spitting ordinance. It prohibits spitting upon the floor, seat or any part of a street car or public conveyance of any kind or upon the floor of a passenger elevator or in public places. Violation is punishable by a fine not less than $2 or more than $100.

Doctor Bitten by Rabid Dog.—Dr. Irving Phillips Lyon and wife have gone to the Pasteur Institute, New York, for treatment of a bite of a supposedly rabid dog. The dog was a pet dog owned by Dr. Lyon, which had been bitten by a wandering dog, and a few days ago developed symptoms of rabies, after having bitten both Dr. and Mrs. Lyon. The dog was carefully observed by the Health Department for further symptoms of the disease, and has developed dumb rabies.

OHIO.

Personal.—Dr. Arthur F. Shepherd, Toledo, has assumed charge of the Dayton Hospital for the Insane.

To Exempt Students.—A bill introduced by Senator Thompson exempts from the state medical examination students matriculated prior to January 1, 1902, and graduating before 1906.

Columbus Health Department Changes.—The Director of Public Safety, C. C. Philbrick, removed from office Dr. Herbert M. Platter, smallpox physician. Thereupon Dr. William D. Deuschle, superintendent of health and charities, tendered his resignation, to take effect at once. Dr. McKendree Smith has been appointed poor inspector, secretary of the department of health and captain of the sanitary police.

Cincinnati Interneships.—Drs. H. Bowles, Muncie, Ind., and Charles F. Souther, Ky., both from the Ohio Medical College, were chosen internes, and Dr. R. C. Kendig, Ashville, Ohio, the alternate for Christ's Hospital.——Dr. R. Wilkinson, a graduate of Miami Medical College, and Dr. Joseph J. Black, of the Ohio College, have been selected internes for the Jewish Hospital.——Drs. Harry Schroer and Edward Davis, both of Cincinnati, have been appointed internes to the German Deaconess Hospital.

PENNSYLVANIA.

Lose Suit Against Doctor.—The jury in the case of Joseph Defrehn vs. Dr. Francis W. Boyer, Pottsville, to recover damages of $30,000 on account of alleged unskilful treatment, brought in a verdict for the defendant.

Dr. **Kershner Reinstated.**—The President has signed the bill restoring Dr. Edward Kershner, formerly of Mercersburg, to the retired list of the navy, with rank of medical inspector, and that his name will be sent to the senate immediately.

Philadelphia.

Long in Practice.—Dr. Michael O'Hara, a graduate of the University of Pennsylvania in 1852, is still in active practice.

Dr. **Carnett Injured.**—Dr. J. Burton Carnett was injured in a collision in St. Louis, recently, sustaining a fracture of the arm.

Bequests.—By the will of Mrs. A. P. Biddle a bequest of $1000, upon the decease of her friend, Mary J. French, is made to each of the following institutions: The Pennsylvania Institution for the Blind, Pennsylvania Training School for Feeble-Minded Children and the Germantown Hospital.

New Honors for Dr. Keen.—A cablegram states that Dr. W. W. Keen has been elected an honorary member of the 31st Congress of the German Chirurgical Association recently in session at Berlin. Dr. Keen has also been elected honorary president of the First Egyptian Congress of Medicine, which will convene Dec. 19 to 23, 1902.

The Medical Club of Philadelphia, on April 5, gave a reception to Dr. John A. Wyeth, of New York. Addresses were made by Dr. Wyeth, Dr. Todd of Atlanta, and Drs. Beattes, Rodman and Fulton, of Philadelphia. The subjects discussed were "Reciprocity Among State Boards of Examiners," and "Better Preliminary Preparation for Medical Education."

St. Joseph's Hospital.—The report of St. Joseph's Hospital for 1901 shows that 2414 patients were treated in the wards. About 6000 new patients received free service at the dispensaries; upwards of 22,000 visits were made, and 2384 emergency cases were cared for. The tradition of the hospital has been departed from in changing the board of management to a non-sectarian body. The hospital has been completely renovated, including the fitting of wards and corridors with metal ceilings and wainscoting. An *x*-ray laboratory is being fitted up. A substantial and commodious ambulance house and dormitory for male employes has recently been completed. Dr. E. E. Montgomery is president of the medical staff of the hospital.

GENERAL.

Hawaii Physicians to Speak English.—It is announced that hereafter no physician unable to speak English will be licensed to practice in the Territory of Hawaii.

Cholera in Manila.—The total number of cholera cases, up to April 9, was 184, and 140 deaths. It has been confined to the natives and the Chinese, who, in their panic, conceal the dead in the fields or desert the sick in the houses. The Americans and Europeans have no fear of the pestilence.

Smallpox.

Connecticut: The annual report of the State Board of Health makes some timely remarks upon smallpox and vaccination. It says: "Connecticut is to be highly congratulated that with a population of over 908,000 there have been only 48 cases of smallpox; at a time, too, when it is prevailing so extensively in other states with which we have such constant intercourse. No stronger evidence can be offered, no more forcible argument can be made, no more convincing proof can exist, than is found in the fact that in Connecticut, as elsewhere, smallpox occurs only in unvaccinated subjects, or in those upon whom vaccination has been neglected for many years. Other methods of securing immunity from smallpox are temporary, untrustworthy, vexatious, expensive, and greatly inferior in every way to the security assured by vaccination." The state board strongly recommends the vaccination of school children as provided by statute. It advises that it be required in large factories where many operatives are gathered daily within closed walls.

Illinois: The board of health of Monmouth decided, April 6, that Edward Kimball, a guest of the Hammond Hotel, who had been sick several days, had a well-developed case of smallpox. In consequence 27 occupants of the hotel were quarantined.

Iowa: The report for 1901 of the Davenport Board of Health remarks that the attenuated smallpox infection, which for more than two years past has been everywhere prevailing, remains almost non-fatal in Davenport and generally in the west, though taking the country over the deaths so far this year are five times and the reported cases two and one-half times what they were in the same period of 1901. From March 1, 1901, to March 1, 1902, Davenport had 107 cases, though it was free from the disease from August 1 to December 5. The record of the 143 cases since June, 1899, shows not one successfully vaccinated before exposure, within 16 years, and only seven with any trace of a vaccinal cicatrix whatever. Surely no better proof of its protective agency could be required.

Minnesota: The report of smallpox issued by the State Health Board for the week ended March 31, gives 231 new cases, reported from 64 localities in 34 counties. No deaths are reported.

Tennessee: Dr. James A. Albright, secretary of the State Board of Health, in his semi-annual report makes the following observations regarding smallpox and vaccination: "Since my last semi-annual report on October 1, 1901, smallpox from that date until Feb. 19, 1902, has appeared in 56 counties of the state. During this period there was reported a total of 2060

cases, with a total of 33 deaths, or a death rate of 1½ per cent. During the same period last year Tennessee had about double this number of cases, as the figures will show—4197 cases, with 98 deaths, or a death rate of about 2¼ per cent.; also during this same period—from October, 1899, to April, 1900—Tennessee had 2591 cases, with 45 deaths, or a death rate of 1¾ per cent. Our reports show that there were present in the state on February 19 of this year only 302 cases of smallpox. Since that time reports from various local boards show the disease to have developed at several additional points over the state; also that the disease has been stamped out altogether at twelve or more points included in our report. At the present time there are not over 250 cases of smallpox in Tennessee. . . . Tennessee has a smaller number of cases of smallpox within its borders to-day than any state of the Union where the disease prevails to any appreciable extent. There has never been a time during the past three years when every local board of health in the state did not promptly respond and do all within its power to eradicate the disease when ordered so to do by the State Board. The local boards have at all times and under all circumstances done everything required, as far as they were able to do, considering the many difficulties encountered, a few of which I have already mentioned, but which I desire to emphasize by reiteration, as follows: 1. The mildness of the disease. 2. Local opposition on account of difference of opinion as to diagnosis. 3. The absence of sufficient authority of law for the enforcement of vaccination. 4. Prejudice against vaccination. 5. In the counties of Middle Tennessee and West Tennessee, where the disease has been exceptionally mild, with a small death rate, or none at all, I have noted a reckless desire among a class of improvident negroes to contract the disease, that they might become pensioners upon the county's bounty and charity. . . . Vaccination, then, according to the experience and observation of Tennessee's health officers, not only protects and renders immune when properly and successfully performed prior to exposure, but even after exposure, vaccination, when performed, serves to modify and reduce to the minimum the virulence of the disease, and, I may add, to such an extent that only one death has afterward resulted, and which might be attributable in part to old age."

Utah: A serious outbreak of smallpox is reported at Vernal.

United States: The total number of cases in the United States on March, 1902, according to the report of the Marine-Hospital authorities, was 24,157, with 707 deaths, which is slightly under 3 per cent. mortality. In the corresponding period of 1901 there were 11,496 cases, with 149 deaths, or above 1¼ per cent.

The Army Medical School Graduation.

The fifth session of the Army Medical School, which began Nov. 4, 1901, ended April 4, 1902, with the commencement or graduating exercises. The lecture hall of the National Museum, Washington, D. C., was filled by an interested audience largely composed of the fair sex, among whom the student officers had made many friends during the session. On the platform were Col. W. H. Forwood, the president of the faculty, who acted as master of the ceremonies, the members of the faculty, the Secretary of War, the Lieutenant-General commanding the Army and the Surgeon-General.

Colonel Forwood described the course of instruction through which the class had passed and in conclusion stated that the highest marks were received by Asst.-Surgeon James M. Phalen, to whom would be awarded the Hoff Memorial Medal. Asst.-Surgeons Conrad E. Koerper, Roderick P. O'Connor and Robert U. Patterson made more than 90 per cent., which entitled them to the distinction of honor graduates. A large proportion of the others made high percentages, and none fell below the 70 per cent. required for a diploma of proficiency. These others were Jerome S. Chaffee, Charles C. Geer, Ernest L. Ruffner, George P. Heard, Roger Brooke, Jr., Arthur M. Line, Verge E. Sweazey, Matthew A. DeLaney, Paul S. Halloran, Kent Nelson, Robert Smart, Lloyd LeR. Krebs, William P. Woodall, Charles A. Ragan, William R. Eastman, George William Jean, James F. Hall, Raymond F. Metcalfe and Perry Lee Boyer.

Secretary Root presented the diploma of the School to each of the members of the class in the order of their rank in the Army, after which the Surgeon-General delivered the formal address of the occasion. He spoke of the importance of preventive medicine in military practice. He said the most important function of the Army Medical School is to make the student officers practically familiar with all that is known upon this subject and to prepare them to give expert advice upon all matters relating to the prevention of disease among our soldiers under the various conditions of service. This had become doubly important since we have come into possession of the Philippines, as our soldiers there are exposed to various infectious diseases which are of rare occurrence, or practically unknown within the limits of the United States.

Reference was made to the suppression of yellow fever in Havana, Cuba, to the methods of protection from malaria and other specific diseases. When he looked back forty-one years to the time when he was a newly appointed assistant-surgeon in the Army and realized how many things of which the medical profession was then ignorant are now known and taught in the Army Medical School, he regretted that he was not now a member of the graduating class, equipped like them for a life of valuable work. Facilities are now afforded at every military post of any importance for bacteriologic and chemical work, and it is expected of the members of this class that they will avail themselves of these facilities not only for purposes of diagnosis in the interests of their patients and of prophylaxis in the interest of the command with which they are serving, but also in the interest of scientific medicine and their fellow man.

Among the enquiries before them are: What are the essential factors in the etiology of beri-beri, of sprue, and of tropical ulcers? What are the principal harmful intestinal parasites in these new possessions of ours? Why is it that malarial fevers prevail in the more elevated regions rather than in the vicinity of the paddy fields of valleys near the sea level? What is the principal habitat of the Amoeba dysenteriæ outside of its human host? etc.

The Surgeon-General then referred to the importance of a knowledge of military hygiene on the part of military officers and to the prompt suppression of such a disease as typhoid fever which would follow a full appreciation by them of the method of propagation of this disease in camps, giving as an instance in point the rapid fall of prevalence and deaths in the camps of the Spanish-American war, when the subject became understood and the knowledge acted upon. He concluded: "Finally, young gentlemen, do not forget to apply practically the knowledge of hygiene which you have acquired for the preservation of your own health. Aside from any personal interest you may have in the matter, it is your duty to do so; for, if you contract a preventable disease through your own neglect of the proper measures of prophylaxis, or are prematurely retired from service for Bright's disease, cirrhosis of the liver or some other chronic ailment caused by excesses of any kind, you deprive the government of the services of a valuable trained officer. But enough of advice. You are liberally educated physicians of mature age, and I do not doubt that you will go out after your brief period of special training in the Army Medical School fully equipped for the duties which await you and fully cognizant of your obligations to yourselves, to the profession, to the Medical Corps of the Army and to your country. With best wishes for the fullest measure of success and happiness in the prosecution of your life work, I wish you godspeed."

The Hoff memorial medal was then presented by Lieut.-Col. John Van R. Hoff to Lieutenant Phalen, after which General Miles stepped to the front of the platform and was greeted with applause, which for some minutes prevented him from speaking. "It is a great pleasure to me," he said, "to welcome this graduating class to the service of the United States. You have completed your course and have passed your last test. You are now officers in the Army and well-educated surgeons, and I congratulate you upon the success you have achieved. You have reached your goal by honest, consistent and earnest efforts, and are now ready to begin a career which will bring honor to yourselves and which will consist of valuable service to your country. I congratulate you and wish you all success. I would recommend one thing to you particularly, and that is that your life as an officer and a surgeon be based upon the splendid address which has been delivered to you by the Surgeon-General of the Army. If you study it and always live up to its teachings and doctrines you can not go wrong. In closing, I would ask you always to remember something which should be honored and revered above everything else in your lives. You are now officers. You wear the uniform of the Army, a uniform which will make you honored and respected wherever you go, either in this country or abroad. You should, and I know you do, feel proud to wear that uniform. Yet there is something of which you should be more proud and which you should always endeavor to honor and respect. It is your citizenship in this great free country, the greatest republic the nations have ever known."

The ceremonies closed with the playing of "My Country, 'Tis of Thee," the audience and officers standing.

CANADA.

License to Practice in Country Only.—A bill has been introduced into the legislature in British Columbia requiring the council of medical examiners to admit to practice, without examination, all physicians presenting diplomas from any college of medicine in Great Britain or any of the dependencies. This is subject to the proviso that no such physician shall not be permitted to practice in any municipality without complying with the further conditions of the existing act. The press naturally wants to know why a man who can set a leg in a town of 100 people can not set a leg in a metropolis, and why the country population is not entitled to as efficient medical attention as that of the city.

Dr. **Roddick's bill** has been reported on favorably by the special committee appointed by the House of Commons, and it will come up for its final reading in the near future. Dr. J. A. Kennedy, writing from Nkandhla, Zululand, under date of February 20, complains of the great injustice which is done graduates in medicine of Canadian universities in South Africa. This practitioner was refused registration in the New Colonies, Transvaal, upon the grounds that only graduates who were registrable in Great Britain might register. When Dominion registration is accomplished, as it will be, if Dr. Roddick's bill passes, there will be a means of offering English doctors a recognition of their registration, and thus the disabilities under which Canadians suffer in South Africa and other parts of the empire will be removed.

Representative in London for McGill.—An article recently appeared in the *London Times* regarding the excellence of the equipment of the Faculty of Applied Science at McGill University, and the wish was expressed that English students would patronize this institution in preference to the Massachusetts School of Technology. Following this the authorities of McGill have announced that McGill has arranged to hold an entrance examination in London commencing on June 6 next. The intimation is also made that Mr. J. Stuart Horner, a well-known English scientist, has been appointed the honorary representative of McGill in Great Britain. As McGill has recently established a six-year course in applied science and medicine, it may be that we will see some English students crossing the Atlantic yet to take a course of medicine in this country.

FOREIGN.

Plague in Brazil.—Five cases of bubonic plague were reported at Rio Janeiro on March 30, and four deaths at Pernambuco.

Von Ziemssen's Library.—The 25,000 works which comprise the late Professor von Ziemssen's medical library, have been purchased by the book store of Gustav Fock, at Leipsic.

Prof. A. Jarisch died at Graz from typhoid fever, March 21. He had recently published an important compendium of skin diseases. Jarisch introduced pyrogallic acid into the materia medica.

Cremation of Plague Victims.—A petition has been presented to the German Reichstag, signed by physicians all over the empire, asking that arrangements be made for the cremation of the bodies of persons who die from the plague or cholera.

Berlin Professor in Trouble.—Professor Schweninger, the private physician of the late Prince Bismarck, and professor in the University of Berlin, has incurred the hostility of the entire staff of the Hospital of Gross Lichterfelde, of which he is chief physician.

Marey Institute at Paris.—The French Chambre des Deputés has appropriated 25,000 francs for the construction of an institute for researches in physiology by the method of graphic tracings, etc. The chief aim is to establish standards for the instruments used, the necessity for which has been proclaimed at various congresses of physiology. Marey's jubilee anniversary was recently celebrated at Paris with much ceremony.

Sentences for Charlatans in Germany.—An illiterate charlatan named Rogge has been condemned to a year's imprisonment on account of injury from some of his procedures at Braunschweig. The Chemnitz courts have nearly doubled this sentence for the quack Wolf for a similar cause. He has had a large practice, and this is his seventy-seventh sentence. A faith-healer at Darmstadt has been sentenced to three years' imprisonment for fraudulent practices. The trial of the healer, Schumacher, resulted in a verdict of four years' imprisonment and a fine of 4500 marks.

Increase of Physicians in Germany.—Consul-General Oliver J. D. Hughes makes the following report to the Assistant Secretary of State at Washington concerning the prospects of the German medical students:

The *Aerztliche Central-Anzeiger* publishes an article according to which the prospects for the average German physician are by no means hopeful, if not gloomy. The article says that in 1880 at an average one physician was counted for every 3400 inhabitants, in 1900 there was one for every 2000, and in all probability in 1906 the proportion will be one to 1850. At present the total number of physicians in German amounts to 28,500, only 6 per cent. of whom are in the employment of the state. The remaining 94 per cent. get no pension, are not freed from municipal taxes, and most of them are compelled to pay a big house rent. Up to 1906, about 500 physicians will die every year, while 1350 young physicians will come from the universities, so that their number will be increased by 860 yearly. In future doctors will have to study for at least 6½ years; the average student, however, will want a longer time, and spend more than 12,000 marks ($2856) on his studies, rarely less. It is pretty certain that more than one-half of the German physicians make less than 3000 marks ($714) a year; an income which compares very poorly with the time and money spent on the medical career. Since about 1885, up to the present time, judges and philologists in Germany reached an average of between 30 and 40 years of age before they were permanently employed by the state, the natural consequence was that a good many of those who could not support themselves, up to that age, either from their parents' or their own private means, turned to the study of medicine. While from 1887 to 1896 the increase of the population amounted to 115 per cent., the number of physicians augmented during that time by 63.8 per cent.

LONDON LETTER.

Prevention of Consumption.

At the third general meeting of the National Association for the Prevention of Tuberculosis, the Earl of Derby, presiding, said that the Association had reached a stage when it was content to progress quietly. Though great efforts might be made—such as that of the congress last year—on the whole the work should be to entrench the ground occupied. Last year's congress marked an epoch in the history of tuberculosis and home progress has been steady and satisfactory. In Liverpool the boards of guardians have united and erected two sanatoria for pauper consumptives. At Bradford the guardians have decided to erect one. At Marylebone, Sheffield, Wolverhampton and other infirmaries for the poor endeavors are being made, by adapting existing buildings or by additions to them, to provide facilities for open-air treatment. In the west of England the counties of Gloucester, Somerset and Wilts have taken joint action to erect a sanatorium for the working classes—a matter in which this country is far behind Germany.

Widal's Reaction in Other Diseases Than Typhoid Fever.

At the Clinical Society an important discussion took place on this subject, initiated by a paper by Dr. Hale White and Mr. W. C. C. Pakes on a case of malignant endocarditis giving Widal's reaction. The case was typically one of malignant endocarditis, the patient dying from cerebral embolism. The blood on June 10 failed to agglutinate typhoid bacilli even in a strength of 1 in 2 and 1 in 20, but not with a strength of 1 in 200. Pure cultures of streptococcus longus were obtained from the blood. On June 29, cultures from the urine collected with every precaution showed the presence of a streptococcus identical with that previously obtained from the blood and a bacillus belonging to the paracolon group. Every attempt which was made to isolate the typhoid bacillus failed. The agglutination test was tried with five different strains of bacilli and with four a complete agglutination was obtained with a dilution of 1 in 20 and with one partial agglutination was obtained with a dilution of 1 in 200. On Sept. 13 the patient died. Blood taken from the heart and the spleen showed the streptococcus longus in pure culture, but no typhoid bacilli could be discovered. The patient never had spots or other signs of typhoid fever, nor were signs of healed ulcers found postmortem. In this case the blood of a patient suffering from malignant streptococcic endocarditis contained certain substances which had the power of agglutinating the typhoid bacillus. Dr. Hale White and Mr. Pakes pointed out the clinical importance of this result in considering the diagnosis between typhoid fever and malignant endocarditis and also alluded to the fact that many observers had failed to obtain a Widal reaction in malignant endocarditis. In this particular case the presence of the reaction could not be due to the patient having had typhoid fever previously, for no reaction was obtained on admission. She was treated with various strains of anti-streptococcic serum, but without good result. Dr. F. T. Foogood referred to the case of a man who inoculated his thumb with septic matter on February 10. This was followed by glandular enlargement and constitutional symptoms with a temperature of 104 F. On March 4 there was epistaxis

and the blood gave Widal's reaction, but next day the right shoulder-joint and the tissues around were edematous and other joints became involved. On March 10, the blood again gave Widal's reaction, with dilutions 1 in 10, 1 in 25 and 1 in 50. The patient recovered, but he had presented the clinical features of septicemia, although the blood gave Widal's reaction.——Dr. J. W. Carr remarked that the paper raised the question of the value of Widal's reaction. He referred to the case of a child aged 5 with symptoms and physical signs typical of acute tuberculosis mainly affecting the lungs, yet the blood tested at the Jenner Institute gave a marked Widal's reaction.——Dr. C. R. Box said that it was most important to indicate what dilutions were used. At first with low dilution he had gotten reactions with diseases other than enteric fever, 1 in 50 was the most suitable dilution for obtaining the true test in cases of actual enteric fever. Turning to the question of nomenclature, he thought that it would be much better to call this test the agglutinative or serum reaction.——Dr. W. Lee Dickinson referred to a case of gastric ulcer which was erroneously diagnosed during life as enteric fever on the strength of the agglutinative reaction with typhoid cultures. ——Dr. Poynton remarked that his experience at St. Mary's Hospital led him to the conclusion that although the test was not infallible it was a most valuable guide. A great deal must depend upon the technique and the dilution of the culture and on the particular strain used, and this to some extent diminished the value of recorded cases.

Success of Women as Surgeons.

At the annual meeting of the recently established new Hospital for Women, of which the staff are all women, Sir Thomas Smith, surgeon to St. Bartholomew's Hospital, said that the surgical work done had shown the capacity of women for successfully performing all the operations which were performed on their sex. Upwards of 1900 obstetrical cases had been attended without a single death connected with the process of parturition, though the normal fatality was 1 in 500; 577 major operations were performed with a mortality under 6 per cent. He had attended the operations in the theater and had nothing but admiration for the great celerity and dexterity which he had witnessed.

Book Notice.

OPHTHALMIC MYOLOGY. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D., Professor of Ophthalmology in the Medical Department of Vanderbilt University. 8vo. Cloth. Pp. 589. Illustrated by 61 Cuts and 6 Plates. Price, $4.00. Nashville, Tenn.: Published by the Author, 139 N. Spruce Street.

It is somewhat remarkable that, in view of the numerous and extensive publications that have from time to time appeared from the pens of American writers on the ocular muscles, their physiology, their pathology and the treatment of the various anomalies of muscular balance, so little or so comparatively little space has been devoted to the physics of the subject. Whether one accepts the conclusions or not, the chief attraction of the book before us lies in the attempt to lay down certain fundamental principles based upon experimentation in the dynamics of the eye muscles—particularly of the extrinsic muscles. Having accepted these theories the mysteries of heterophoria are, according to the author, readily explicable.

We are, ourselves, mainly interested in the challenge given to the Helmholtz law of direction and to the reality of Listing's plane. As is well known, the latter is an imaginary vertical plane, which, passing through the centers of the eyes, always contain their axes of rotation in whatever direction they are turned. Savage, on the other hand, claims that the axis of rotation always lies well within the *equatorial* plane of the eye and not necessarily within the plane of Listing. A very material alteration in the well-known law of Listing is called for if the author be correct. In any event, he supplies this demand on page 54, and furnishes us with a restatement that certainly seems plausible, and which, we do not think, will be readily controverted: "When the line of fixation passes from its primary to any other position, the angle of torsion of the eye in this second position is the same as if the eye had arrived at this second position by turning first about the vertical axis and then about the horizontal axis." This would mean, of course, that the eye in its second position would have its vertical axis still vertical and its horizontal axis still horizontal.

Again, as is well known, Helmholtz taught that the lines of direction of all objects in the visual field intersect at the nodal point just posterior to the crystalline. Savage suggests that this is an incorrect or misleading statement, and that it would be nearer the truth to claim the intersecting point for the center of retinal curvature, which, he adds, is also the center of rotation of the eye.

Our author, while agreeing in the main with the contention of Maddox on the subject of ocular torsion, believes that undue rotation of either eye on its visual axis is prevented by the oblique muscles, and that, practically, the vertical axes remain parallel to each other and the meridian plane of the head. He very properly rejects the ideas that formerly prevailed and that are, even now, held by some observers as to the simplicity of the oculo-muscular movements. We especially recommend a perusal of Chapter I, particularly of the section "The Individual Muscle and Its Plane." As the author's views are introductory to the work itself, the following quotation will be germane to this review: "The extrinsic muscles do not act alone. In every act of binocular single vision the triple task imposed on the twelve muscles by the imperious law of corresponding points, must be performed. The keeping of the visual axes in the same plane is the chief work of the superior and inferior recti, but they are aided in this work by the obliques, which are also sub-vertors and 'super-vertors.' The intersecting of the visual axes at the point of fixation is the chief, sometimes the only, work of the interni and externi; but the interni are helped by the superior and inferior recti, so that the point of intersection may not be beyond the object; while the obliques assist the externi to prevent the intersection from taking place between the observer and the object. The paralleling of the vertical axes of the eyes with the median plane of the head is the chief work of the obliques, but in doing this work they are hindered rather than helped by the recti. In subversion the superior obliques aid the inferior recti, but at the same time the former must counteract the mischievous outward torsioning effect of the latter. In superverting the eyes the inferior obliques help the superior recti, but the former must oppose the inward torsioning effect of the latter."

The chapter on Cyclophoria should be perused by every student of ocular myology, not only because of the inherent practical importance of the subject, but because it is handled by the man with whom the whole matter is original (although he generously credits his associate, Price, with the name) and who has certainly presented it in a clear and concise manner.

The management of cases of muscular imbalance and the rules laid down for the treatment of every possible form of heterophoria and heterotropia also constitute a most valid claim upon our gratitude. Whether or not we suspect that the enthusiasm of the writer occasionally lead him to expect operative and other remedial results denied to the ordinary ophthalmologist, yet definite and even dogmatic assertions at least command attention and challenge investigation. Space does not allow of reference to even the most important of the subjects comprised in the twelve chapters (whose perusal we commend to every ophthalmologist) but we do not think that much fault will be found with them by even the most conservative or carping critic. If a minor criticism were to be made we would like to join issue with Dr. Savage in the advice he gives (page 566) as to one of the ways of dealing with astigmatism—"give at once a full correction . . . as shown by the ophthalmometer." Not only do we believe this advice to be unwise in that it almost always adds many woes to the unfortunate so treated, but because we agree with Donders that the astigmatism of the cornea is usually greater than the total astigmatism of the refracting surfaces of the eye, and, of course, an ophthalmometric correction is commonly an overcorrection. Another minor point is the binding of the book. We believe that a volume of nearly 600 octavo pages, filled with matter as good as this, deserves a stronger and better covering—an affair that, happily, can be adjusted in the second edition.

Married.

H. P. MOULTON, M.D., Petersburg, Ill., March 18.

C. BRET POOL, M.D., to Mrs. Alice B. Barnes, both of Lowell, Mass., March 19.

FRANK WALKER, M.D., Wichita, Kan., to Mrs. Irene Owen of Topeka, Kan., March 20.

HENRY BARTON JACOBS, M.D., to Mrs. Robert Garrett, both of Baltimore, Md., April 2.

C. M. DENNY, M.D., to Miss Myrtle Bradshaw, both of New Brighton, Pa., March 26.

JAMES DITMAR VOORHEES, M.D., to Miss Louise Brown, both of New York City, April 2.

GRAHAM STREET, M.D., to Miss Margaret Colt Bryan, both of South McAlester, I. T., March 25.

H. C. NICKOLAI, M.D., Milwaukee, Wis., to Miss Mary E. Tremain of Saginaw, Mich., March 29.

LIVINGSTON L. LEWIS, M.D., Hoboken, N. J., to Mrs. Gus Itkins, of North Bergen, N. J., March 20.

EDWARD R. HENNING, M.D., West Liberty, Ohio, to Mrs. Lulu Mae Hamer of Bellefontaine, Ohio, March 26.

ARTHUR GRAY SAGE, M.D., Buffalo, N. Y., to Mrs. Elizabeth Smith Alexander of Dunkirk, at Buffalo, March 26.

BENJAMIN W. CORNWELL, M.D., Buffalo, N. Y., to Miss Lydia M. Bates of Batavia, N. Y., in Grace Church chantry, New York City, March 11.

THOMAS MILLER MORROW, M.D., Altoona, Pa., to Miss Laura Virginia Greene, superintendent of the Cottage State Hospital, Philipsburg, Pa., March 17.

Deaths and Obituaries.

Albert C. Corr, M.D. Chicago Medical College, 1868, one of the best-known practitioners of Central Illinois, formerly president of the State Board of Health, and president of the Illinois State Medical Society in 1896, died at his home in Carlinville, April 2, after a short illness, aged 63. He was a member of the American Medical Association, and at the time of his death was in editorial charge of the eye and ear department of the *Journal of the Southern Illinois Medical Society*. The following are the resolutions of respect adopted by the Macoupin County Medical Society at the A. C. Corr memorial held in Carlinville, April 4:

Whereas, In obedience to Nature's fixed and unalterable law of life and death, we must part from A. C. Corr, the nestor of our society, a charter member and one of its constant supporters, more than twenty-five years its secretary. Resolved, That we mourn his loss as a brother physician, cut down while in active work for the cause of science and humanity. Resolved, That we escort him to his last resting place, to await the coming of the Great Physician, whose touch healeth all sorrow and pain. Resolved, That a suitable floral emblem be placed upon his bier, as a public testimonial of our appreciation of his beautiful character as a friend, counsellor and Christian gentleman. Resolved, That a copy of these resolutions be made of record and a copy be sent to the bereaved wife and partner. Resolved, That a copy be sent to the city papers and to the state and national medical journals.

William S. Muir, M.D.—By the death of Dr. Muir, of Truro, Nova Scotia, Canada has lost one of her foremost general practitioners, and certainly one of the most popular men in the medical profession. Dr. Muir, who was the son of a doctor, was born at Truro in 1853. He was graduated in 1874 from the Halifax Medical College and from Dalhousie University. For a time he served as house surgeon in the Halifax General Hospital, now the Victoria General Hospital, and subsequently took a course in the old country in 1877, again in 1879 and yet again in 1891. He has always been a very active man in medical society work. Elected secretary of the Nova Scotia Medical Society in 1887, he continued to hold that office until the time of his death. Last year he was president of the Maritime Medical Association. For years he has been a prominent and regular attendant at the meetings of the Canadian Medical Association, having held the offices of local secretary and vice-president for the province of Nova Scotia on different occasions. He was a great worker on committees at the annual meetings of the national association, and his loss will be very great indeed. A big, strong, robust, Scotch-Canadian, of a kindly and sympathetic nature, and withal a jovial disposition, he has been cut down in the prime of life, after but three days' sickness from appendicitis.

William D. Middleton, M.D. Bellevue Hospital Medical College, New York, 1868, one of the most eminent surgeons of the West, professor of surgery and dean of the medical faculty of the State University of Iowa, and surgeon-in-chief of the Chicago, Rock Island and Pacific Railway, died at his home in Davenport, Iowa, April 5, from acute septicemia following a wound received while he was performing an operation. It appears that March 30 Dr. Middleton, assisted by Dr. H. W. Braunlich, operated on a woman suffering from peritonitis, possibly of a streptococcic origin. It is supposed that while tying an artery, Dr. Middleton abraded the thumb of his left hand. The next day he was seized with a chill, which was immediately followed by intense oppression over the chest and high fever. There was no local affection until the fifth day, when the arm became edematous and was lanced. Dr. Braunlich is suffering in the same way, and at this time, April 8, is not expected to recover.

Delavan Bloodgood, M.D. Jefferson Medical College, Philadelphia, 1854, medical director, U. S. Navy, retired, died at his home in Brooklyn, N. Y., April 5, from heart disease, aged 70. His first service was on the frigate *Merrimac* on the Pacific station. At the opening of the Civil war he was serving on the *Dacotah* in Hampton Roads. Later he was with Farragut on the Mississippi and afterward saw duty off the Newfoundland banks in pursuing privateers. After the war he served on foreign stations, and for several years was fleet surgeon of the Pacific squadron.

John J. Stafford, M.D. University of Georgetown, D. C., 1885, a practitioner of Washington, D. C., for several years professor of chemistry at the Georgetown University Medical School, and a member of the American Medical Association, died at his home in Washington, March 17, from chronic nephritis, after a long illness, aged 52.

Gerald D. O'Farrell, M.D. University of Pennsylvania, 1862, a prominent practitioner of Philadelphia, who served throughout the Civil war as surgeon of the 63d and 215th Pennsylvania regiments, and afterward settled in Kensington, died suddenly from heart disease while making a professional call, March 27, aged 70.

Frank L. Portzer, M.D. Western Pennsylvania Medical College, Pittsburg, 1888, of Greensburg, Pa., a member of the American Medical Association, was found dead in bed from internal hemorrhage, in Saltsburg, March 27, aged 35. He had been in impaired health for a long time.

Frank Harold Thompson, M.D. Trinity Medical College, Toronto, Ontario, a well-known young physician, who had spent the last two years as surgeon of the coast and geodetic survey steamer *Patterson*, died from typhoid fever after a long illness, March 21, aged 26.

D. A. Lewis, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880, prominent as a physician in Boone County, Neb., until two years ago, when failing health necessitated his retirement, died at his residence in Albion, March 28, from paresis, aged 54.

William H. H. Nash, M.D. Miami Medical College, Cincinnati, 1872, a member of the American Medical Association and a practitioner of medicine in Columbus for many years, died from paralysis at the Home for the Aged, Columbus, March 31, aged 65.

Moses T. Babcock, M.D. Geneva (N. Y.) Medical College, 1852, who had practiced medicine in Hammondsport, N. Y., for fifty years, died suddenly at his home in that place, March 31, aged 77. During the Civil war he served as assistant surgeon.

Charles R. Burks, M.D. Jefferson Medical College, Philadelphia, 1858, a practitioner of Kerr's Creek and Natural Bridge districts, Virginia, died at his home near Sherwood, Rockbridge County, March 26, from consumption, aged 70.

Thomas Dunn English, M.D. University of Pennsylvania, Philadelphia, 1839, but who preferred literary to professional pursuits and is best-known as the author of "Ben Bolt," died at his home in Newark, N. J., April 1, aged 82.

Frederic Augustus Putnam, M.D. Castleton Medical College, Vt., 1837, who practiced for sixty years in New York City, but had resided at Sutton, Mass., for the past six years, died at his home in that place, March 27, aged 89.

Charles L. Tarleton, M.D. Tulane University, New Orleans, La., a prominent physician of Callaway County, Mo., and a member of the state pension board, died from Bright's disease at his home in Cedar City, aged 66.

Harry W. Whitesell, M.D. Western Pennsylyania Medical College, Pittsburg, Pa., 1897, of Sewickley, Pa., was found dead on a pile of rocks on the banks of the Ohio, March 23. He was 28 years of age.

David J. Underwood, M.D. College of Physicians and Surgeons, Baltimore, 1887, a leading physician of New Martinsville, W. Va., died suddenly at his home in that place, March 26.

Gilbert P. Mills, M.D. Bellevue Hospital Medical College, New York, 1892, died at his ranch home near Missoula, Mont., March 26, from consumption, after an illness of several years.

James Watt Taylor, M.D. Medico-Chirurgical College, Philadelphia, 1866, a practitioner of Pittsburg, Pa., died at his residence, March 18, after an illness of four years, aged 72.

Thomas N. Bryan, M.D. University of Louisville, 1857, for many years a prominent physician of Indianapolis, died at his home in that city, April 3, after an illness of one week.

Simon P. Breed, M.D. McDowell Medical College, St. Louis, Mo., 1847; University of Pennsylvania, Philadelphia, 1865, died at his home in Princeton, Ill., March 21, aged 83.

S. Townsend Bowne, M.D. Albany (N. Y.) Medical College, 1872, for several years a prominent physician of Leadville, Colo., died from dementia at Pueblo, March 26.

Jacob Young, M.D. Baltimore Medical College, 1843, the oldest physician in Wetzel County, W. Va., died at his home in New Martinsville, March 22, aged 82.

Bowen Combs Bowell, M.D., who had practiced medicine in La Porte County, Ind., for more than fifty years, died at his home in La Porte, March 29, aged 82.

Jerome F. Hertzmann, M.D. a resident of Omaha for twenty-five years, died at his home in that city, March 28, after an illness of seven months, aged 48.

Sven S. Reimestad, M.D. University of Minnesota, 1895, a practitioner of Madelia, Minn., died suddenly, March 29, at a hospital in Minneapolis, aged 30.

Richard H. Sommerville, M.D., a native of Moorefield, W. Va., a graduate of the University of Maryland, 1882, died at San Antonio, Texas, aged 40.

Charles F. Ulmer, M.D. Arkansas University, Little Rock, 1895, a practicing physician of Dublin, Texas, died at his home in that city, March 23, aged 45.

Oscar K. Guyer, M.D. Medical College of Ohio, Cincinnati, 1884, a prominent practitioner of Lewisville, Ind., died at his home in that place, March 31.

John F. Ely, M.D. formerly of Cedar Rapids, Iowa, and one of the founders of the Dubuque Medical Society, died in California, March 14, aged 81.

E. E. Furber, M.D. Harvard University Medical School, Boston, died at his home in Springfield, Vt., March 22, from pneumonia, aged 34.

Manning T. Smith, M.D. University of Maryland, Baltimore, 1881, died at his home in Union, S. C., March 25, from pneumonia, aged 47.

Robert P. Davis, M.D. Cincinnati College of Medicine and Surgery, 1873, died at his home in Portland, Ind., March 28.

Alfred J. Sporry, M.D. University of Zurich, Switzerland, 1885, died at Portland, Ore., March 16.

Association News.

Annual Announcement.

The fifty-third annual session (55th year) of the American Medical Association will be held at Saratoga Springs, N. Y., on Tuesday, Wednesday, Thursday and Friday, June 10, 11, 12 and 13.

GENERAL MEETING.

The first general, or opening meeting of the Association will be called to order at 11 a. m., Tuesday morning, June 10.

MEMBERSHIP.

No permanent member shall take part in the proceedings of the Association, or of any of its Sections, until he has exhibited his credentials to the proper officer or committee, entered his name and address in full on the registration book, and paid his annual dues. He shall also indicate the Section to which he will officially attach himself.

Permanent members who have complied with the foregoing regulations shall at all times be entitled to attend the General Meetings and Sections, and to participate in the affairs of the Association, so long as they continue to conform to its regulations.

No individual who shall be under sentence of expulsion or suspension from an affiliated society (whether a directly affiliated state or territorial society or an indirectly affiliated local society) of which he may have been a member, or whose name shall have been dropped from the rolls of the same, shall be received as a member or shall be allowed to continue as a member of this Association, until he shall have been relieved from said sentence or disability by such society; nor shall any person not a member of his local affiliated medical society, provided there be such a one, be eligible to membership or be allowed to continue as a member in the American Medical Association.

Members may vote for Section officers only in that Section with which, upon registration, they have declared their intention of uniting.

Any permanent member who shall fail to pay his annual dues for one year, unless absent from the country, shall be dropped from the roll of permanent members, after having been notified by the secretary of the forfeiture of his membership.

Honorary Members may be elected by the House of Delegates on the nomination of a Section, but not more than three Honorary Members shall be elected in any one year.

Honorary and Associate Members shall have all the rights of membership except those of voting and holding office. They shall not be assessed for dues, nor shall they be entitled to receive THE JOURNAL free.—From Chapter I of By-laws.

HOUSE OF DELEGATES.

The House of Delegates will convene for its first meeting at 2 p. m., Tuesday, June 10.

Each state and territorial society entitled to representation shall have the privilege of sending to the House of Delegates one delegate for every 500 of its resident regular members, and one for any additional fraction of that number; but each affiliated state and territorial society shall be entitled to at least one delegate.—Chapter III, Sec. 2, By-laws.

Members of the House of Delegates shall be elected for a term of two years, and those state and territorial societies entitled to more than one representative are requested so to arrange such election that one-half of their delegates, as near as may be, shall be elected each year.—Chapter III, Sec. 4, By-laws.

According to reports received March 1, 1902, the following is the number of members in the various state societies and the number of delegates to which each was entitled at that time: Alabama, membership 1156, delegates, 3; Arizona, 87, 1; Arkansas, 270, 1; California, 315, 1; Colorado, 326, 1; Connecticut, 684, 2; Delaware, 119, 1; District of Columbia, 394, 1; Florida, 160, 1; Georgia, 650, 2; Idaho, 75, 1; Illinois, 1203, 3; Indian Territory, no response, but will be entitled to only 1 delegate; Indiana, 1625, 4; Iowa, 719, 2; Kansas, 109, 1; Kentucky, 550, 2; Louisiana, 316, 1; Maine, 445, 1; Maryland, 678, 2; Massachusetts, 2644, 6; Michigan, 606, 2; Minnesota, 466, 1; Mississippi, 314, 1; Missouri, 270, 1; Montana, 113, 1; Nebraska, 410, 1; New Hampshire, 365, 1; New Jersey, 1038, 3; New Mexico, 42, 1; New York, 1421, 1; Nevada, no response, but will be entitled to only 1 delegate; North Carolina, 485, 1; North Dakota, 126, 1; Ohio, 989, 2; Oklahoma, 145, 1; Oregon, 212, 1; Pennsylvania, 3518, 8; Rhode Island, 251, 1; South Carolina, no response, but will be entitled to only 1 delegate; South Dakota, 68, 1; Tennessee, 317, 1; Texas, 352, 1; Utah, 87, 1; Vermont, 193, 1; Virginia, 1033, 3; Washington, 156, 1; West Virginia, 306, 1; Wisconsin, 628, 2; Wyoming, 37, 1.

THE SECTIONS.

The various scientific Sections of the Association will hold their first meetings at 2 p. m., Tuesday, June 10. Section 2 of Chapter IX of the By-laws says that the Sections shall be composed of those who have complied with Sections 1 to 4 of Chapter I of the By-laws. These are as follows:

Permanent Members.—Permanent Members shall consist of such members of the state societies, together with their affiliated local societies, entitled to representation in this Association as shall make application for admission, in writing to the Treasurer, and accompany said application with a certificate of good standing signed by the president and secretary of the society of which they are members, and the annual fee.

Members by Invitation.—Members by Invitation shall consist of distinguished physicians of foreign countries who may be invited by the officers of Sections or of the Association. They shall hold their connection with this Association until the close

of the annual session to which they are invited, and shall be entitled to participate in all of its affairs, as in the case of permanent members, but they shall not be assessed the annual dues.

Honorary Members.—Honorary Members shall be physicians of foreign countries who have risen to pre-eminence in the profession of medicine.

Associate Members.—Representative teachers and students of the allied sciences, not physicians, may become Associate Members by the vote of the House of Delegates.

PAPERS BEFORE SECTIONS.

It shall be the duty of every member of the Association who proposes to present a paper or report before a Section to forward either the paper or an abstract indicative of its contents, and its *length*, to the Secretary of such Section at least one month before the annual session at which the paper or report is to be presented. This abstract shall contain not less than fifty nor more than two hundred words.

ORATIONS.

The following annual orations will be delivered: On Medicine, Dr. Frank Billings, Chicago; on Surgery, Dr. Harry M. Sherman, San Francisco, Cal.; on State Medicine, Dr. J. M. Emmert, Atlantic, Iowa.

ARRANGEMENTS.

Chairman Committee of Arrangements, Dr. Geo. F. Comstock, Saratoga Springs, N. Y.

PROPOSED AMENDMENTS.

Amendment to the Constitution and By-laws, offered by Dr. L. B. Tuckerman, of Ohio: Amend Section 3, Chapter VII of the By-laws by substituting the following:

"Section 3. Committee on Legislation. The Committee on Legislation shall consist of three members appointed by the President of the Association for a term of three years. One member shall be a resident of Washington, D. C., one of Baltimore, and one of Philadelphia. It shall be the duty of the Committee to represent before Congress the wishes of this Association regarding any proposed legislation that in any respect bears upon the promotion and preservation of the public health or upon the material or moral welfare of the medical profession. This Committee shall also invite to a conference once a year or oftener if need be, one delegate each from the medical service of the United States army, the United States navy, and the Marine-Hospital Service, one from the Bureau of Animal Industry, and one from each affiliated state or territorial medical society; such conference to meet in Washington to consider questions of medical and sanitary legislation, and to report back to this Association and to the several state and territorial societies."

Amendment to the Constitution and By-laws, offered by Dr. T. J. Happel, of Tennessee:

Chapter IX, Section 7, as follows: Strike out the following words of Section 7, Chapter IX, "reprints and transactions of Sections, including its lists of members, its rules of order, its lists of officers, as now published, shall be paid for out of the funds of the Association, and furnished free to members of the Association."

OFFICERS OF SECTIONS, 1901-1902.

Practice of Medicine—Chairman, Frank A. Jones, Memphis, Tenn.; Secretary, Robert B. Preble, Chicago.

Obstetrics and Diseases of Women—Chairman, J. H. Carstens, Detroit; Secretary, C. L. Bonifield, Cincinnati.

Surgery and Anatomy—Chairman, DeForest Willard, Philadelphia; Secretary, James B. Bullitt, Louisville.

Hygiene and Sanitary Science—Chairman, Arthur R. Reynolds, Chicago; Secretary, H. M. Bracken, Minneapolis, Minn.

Ophthalmology—Chairman, Frank Allport, Chicago; Secretary, C. A. Veasey, Philadelphia.

Diseases of Children—Chairman, H. M. McClanahan, Omaha, Neb.; Secretary, Frank X. Walls, Chicago.

Stomatology—Chairman, A. H. Peck, Chicago; Secretary, Eugene S. Talbot, Chicago.

Nervous and Mental Diseases—Chairman, Richard Dewey, Wauwatosa, Wis.; Secretary, F. Savary Pearce, Philadelphia.

Cutaneous Medicine and Surgery—Chairman, Henry W. Stelwagon, Philadelphia; Secretary, R. R. Campbell, Chicago.

Laryngology and Otology—Chairman, G. Hudson Makuen, Philadelphia; Secretary, J. F. Barnhill, Indianapolis.

Materia Medica, Pharmacy and Therapeutics—Chairman, George F. Butler, Alma, Mich.; Secretary, C. S. N. Hallberg, Chicago.

Physiology and Pathology—Chairman, Frank B. Wynn, Indianapolis; Secretary, Joseph McFarland, Philadelphia.

GEORGE H. SIMMONS,
Secretary American Medical Association.

Saratoga Springs Hotels.

Below we give a list of the important hotels of Saratoga Springs, with prices. Besides those mentioned there are a number of boarding houses whose rates vary from $1 to $2 per day. The chairman of the committee on hotels is Dr. J. R. Swanick, Saratoga Springs, who writes that he will be glad to engage rooms in advance for those who will write to him.

Hotels.	Accommodations.	Single rooms.	Single rooms, with bath.	Double rooms.	Double rooms, with bath.
Grand Union	1500	$4.00 up	$6.00 up	$8.00 up	$10.00 up
United States	1200	4.00-5.00	6.00-7.00	8.00-10.00	10.00-12.00
Congress Hall	1000	4.00	5.00-6.00	8.00	10.00
Kensington	500	3.00 up	4.00 up	5.00 up	8.00 up
American-Adelphi	300	3.00 up	4.00 up	6.00 up	8.00 up
Columbian Hotel	250	3.00		5.00	
Worden Hotel	250	3.00		6.00	
Everett House	200	2.50		4.00	
Huestis House	200	2.00		4.00-5.00	
The Commercial	150	2.50	3.00	4.00	5.00
Hotel Continental	150	2.00		3.00	
Franklin House	150	1.50-2.00		3.00	
Vermont House	125	2.50		5.00	
The Carlsbad	100	2.00	2.50	3.00	4.50
Woodbridge Hall	100	2.00		3.00	
Elmwood Hall	100	1.35		2.00	
The Waring	75	2.00		3.00	
Spencer House	75	2.00		3.00	
The Linwood	50	2.50		4.00	
The Washburne	50	2.00		3.00	
The Moriarta	50	3.00	Suite.	6.00	Suite.
The Ashton	50	2.50		4.00	
Broadway House	50	2.50		4.00	
Pleasant Home	40	2.50		4.00	
Washington Hall	35	2.00		4.00	
Summer Rest	35	2.00-2.50		4.00	

New Members.

The following is a list of new members for the month of March, 1902:

ALABAMA.
Winn, L. M., Eufaula.

ARIZONA.
Palmer, E. Payne, Phœnix.
Foss, J. W., Phœnix.

CALIFORNIA.
Kirk, A. W., San Francisco.
Dorn, Dora I., San Francisco.
Thomas, P. M., San Francisco.
Riley, W. C., San Francisco.
Easton, D. E. F., San Francisco.
Herrington, H., San Francisco.
Thorne, I. W., San Francisco.
Burnham, F. R., San Diego.
Lautersheimer, Geo. A., Los Angeles.
Buteau, S. H., Oakland.
Mueller, H. E., Oakland.
Cox, T. J., Sacramento.
Henderson, A. W., Sacramento.
Twitchell, E. W., Sacramento.
Soiland, A., Los Angeles.
Garcelon, Frank, Pomona.

COLORADO.
Gregersen, R. J., Leadville.
Turner, W. E., Brush.
Pilsbury, L. B., Primero.
Cohen, H. M., Victor.
Macomber, E. K., Delta.
Atcheson, Geo., Idaho Springs.
Sewall, Henry, Denver.

CONNECTICUT.
Fleck, H. W., Bridgeport.

DISTRICT OF COLUMBIA.
King, E. F., Washington.

GEORGIA.
Brown, Geo., Atlanta.
Crows, W. A., Atlanta.

ILLINOIS.
Manierre, C. E., Chicago.
Price, A. E., Chicago.
Porter, J. L., Chicago.
Jackson, Josephine, Chicago.
Marquis, G. P., Chicago.
Powers, F. H., Champaign.
Sargent, A. M., Lincoln.
Maxon, O. F., Jr., Springfield.
Fox, A. L., Danville.
Baxter, G. E., Jacksonville.

INDIANA.
Wright, C. L., Huntington.
Cowan, E. H., Crawfordsville.
Ford, T. J., Connersville.
Jeffries, W. E., Indianapolis.

KANSAS.
Stacey, H. J., Leavenworth.

KENTUCKY.
Hoover, J. C., Owensboro.
Field, J. W., Owensboro.
Otis, L. J., Paducah.

MAINE.
Howard, B. F., Bangor.

MARYLAND.
Beckley, E. L., Middletown.
Goldsborough, B. W., Cambridge.

MASSACHUSETTS.
Monks, G. H., Boston.
Bottomley, J. T., Boston.
Smith, C. M., Boston.
Bangs, C. H., Lynn.
Curry, E. F., Fall River.
Nickerson, W. J., New Bedford.

MICHIGAN.
Kirton, J. R. W., Phœnix Mine.
Balch, R. E., Kalamazoo.
MacLaren, A. D., Port Huron.

MINNESOTA.
Smith, C. A., Minneapolis.
Holman, C. J., Mankato.

MISSOURI.
Robinson, E. F., Kansas City.
Bell, W. J., St. Joseph.
Armstrong, H. E., Billings.

NEVADA.
Hershirer, A. E., Reno.

NEW JERSEY.
Armstrong, E. C., Weehawken.
Freeman, R. D., South Orange.

NEW MEXICO.
Harrison, G. W., Albuquerque.

NEW YORK.
Hendrickson, S., Brooklyn.
Hoople, H. N., Brooklyn.
Cruikshank, W. J., Brooklyn.
Pearce, E. F., Brooklyn.
Prendergast, P. J., Brooklyn.
Keyes, J. J., Brooklyn.
Cleland, T. J., New Lebanon.
Fairbank, A. W., Chazy.
Renner, W. S., Buffalo.
Merrins, E. M., New York City.
Hayes, W. Van V., New York City.
Cohn, S., New York City.
Abrahams, R., New York City.

NORTH DAKOTA.
Haagensen, E. C., Hillsboro.
MacGregor, M., Fessenden.

OHIO.
Patton, M. V., Springfield.
Taylor, W. J., Dayton.
Beckwith, S. W., Toledo.
Hill, C. T., Akron.
Hines, J. A., Van Wert.
Skeel, R. E., Cleveland.
Huston, E. M., Dayton.
Roberds, T. W., Bell.
Fitzsimmons, J. F., Bucyrus.
McClure, J., Marietta.
Williams, B. T., Goshen.
Longfellow, R. C., Fostoria.
Wood, J. S., Collinwood.

OREGON.
Lazier, D. C., Arlington.
Stephenson, G. W., Medford.
Bell, J. F., Portland.
Fried, M., Portland.
Houck, G. E., Roseburg.
Twitchell, H. F., Portland.
Gregg, G. W., Wallowa.
Phy, W. T., Baker City.
Parker, Thos., Portland.
Daniel, Z. T., Silitz.
Geary, J. W., Burns.
Short, J. M., Gresham.

PENNSYLVANIA.
Miller, Mary Thomas, Philadelphia.
Hand, A., Jr., Philadelphia.
Simpson, F. F., Pittsburg.

RHODE ISLAND.
Latham, D. S., Auburn.

SOUTH DAKOTA.
Hawkins, J. R., Sioux Falls.

TEXAS.
Deal, E. O., Sherwood.
McClendon, E. F., Galveston.

UTAH.
Meyer, Theo., Salt Lake City.
Hughes, M. A., Salt Lake City.
McElroy, R. L., Salt Lake City.
Stauffer, F., Salt Lake City.
Beer, W. F., Salt Lake City.
LaMotte, H., Salt Lake City.
Conroy, E. M., Ogden.

VERMONT.
Griffin, C. E., Fair Haven.

VIRGINIA.
Phillips, J. E., Suffolk.
Green, P. B., Wytheville.

WASHINGTON.
Osburn, Eva St. Clair, Tacoma.
Hall, W. L., Spokane.
Van Kirk, F. J., Whatcom.

WEST VIRGINIA.
Johnston, W. L., McDowell.
Golden, W. W., Elkins.

WISCONSIN.
Amundson, A. C., Cambridge.
Adams, J. C., West Superior.
Darrow, Edw., West Superior.
Love, G. S., Pewaukee.

Societies.

COMING MEETINGS.

American Medical Association, Saratoga Springs, N. Y., June 10 to 13.

Medical Association of the State of Alabama, Birmingham, April 15, 1902.

Medical Society of the State of California, San Francisco, April 15-17, 1902.

Medical Association of Georgia, Savannah, April 16, 1902.

Mississippi State Medical Association, Jackson, April 16, 1902.

New Mexico Medical Society, Albuquerque, April 16, 1902.

South Carolina Medical Association, Spartanburg, April 16-17, 1902.

Medical and Chirurgical Faculty of Maryland, Baltimore, April 22, 1902.

Association of American Physicians, Washington, D. C., April 29 to May 1, 1902.

American Association of Genito-Urinary Surgeons, Atlantic City, N. J., April 30, 1902.

International Association of Railway Surgeons, St. Louis, Mo., April 30 and May 1 and 2, 1902.

American Gastro-Enterological Association, Washington, D. C., May 2, 1902.

Nebraska State Medical Society, Omaha, May 6-8, 1902.

Texas State Medical Association, Dallas, May 6-9, 1902.

Kansas Medical Society, Lawrence, May 7-9, 1902.

American Therapeutic Society, New York City, May 13, 1902.

Utah State Medical Society, Salt Lake City, May 13-14, 1902.

Oklahoma Territory Medical Association, Oklahoma City, May 14, 1902.

Arkansas Medical Society, Little Rock, May 13-15, 1902.

New Hampshire Medical Society, Concord, May 15-16, 1902.

Illinois State Medical Society, Quincy, May 20-22, 1902.

American Surgical Association, Albany, N. Y., May 20-22, 1902.

Medical Association of the State of Missouri, St. Joseph, May 20-22, 1902.

Kentucky State Medical Society, Paducah, May 7-9, 1902.

Arizona Medical Association, Tucson, May 21-22, 1902.

Medical Society of West Virginia, Parkersburg, May 21-23, 1902.

Medical Association of Montana, Anaconda, May 21-22, 1902.

Iowa State Medical Society, Des Moines, May 21-23, 1902.

Indiana State Medical Society, Evansville, May 22-23, 1902.

American Pediatric Society, Boston, May 26-28, 1902.

American Laryngological Association, Boston, Mass., May 26-28, 1902.

American Gynecological Society, Atlantic City, May 27, 1902.

Connecticut Medical Society, New Haven, May 28-29, 1902.

Ohio State Medical Society, Toledo, May 28-30, 1902.

Erie County (N. Y.) Medical Association.—At the annual meeting of this Association, Dr. James Grosvenor was elected president; Dr. Jacob S. Otto, secretary, and Dr. William I. Thornton, treasurer, all of Buffalo.

Lee County (Ark.) Medical Society.—The physicians of Lee County, Ark., have organized this Society with Dr. T. J. Robinson, Marianna, president; Dr. William S. Bradford, Haynes, vice-president, and Dr. William H. Deaderick, Marianna, secretary and treasurer.

Dearborn County (Ind.) Medical Society.—At the annual meeting of this Society, held March 26, at Lawrenceburg, Dr. O. P. M. Ford, Rising Sun, was elected president; Dr. Richard C. Bond, Aurora, vice-president, and Dr. Francis M. Mueller, Lawrenceburg, secretary.

Smith County (Texas) Medical Society.—The physicians of Smith County met at Tyler, March 24, and organized a county medical society, with Dr. Thomas J. Bell, Tyler, president; Dr. William S. Lacey, Troupe, vice-president, and Dr. Albert Woldert, Tyler, secretary and treasurer.

Montgomery County (Ind.) Medical Society.—At the annual meeting of this Society, held in Crawfordsville, March 26, Dr. Harry E. Greene, Crawfordsville, was elected president; Dr. George T. Williams, Brown's Valley, vice-president; Dr. Effie Current, secretary, and Dr. Oliver H. Jones, Crawfordsville, treasurer.

Jefferson County (W. Va.) Medical Society.—This Society was reorganized, March 15, at Charlestown, W. Va., and the following officers elected: Dr. William Neill, Charlestown, president; Drs. J. M. Miller, Charlestown, and Charles C. Lucas, Kearneysville, vice-presidents; Dr. George A. Davis, Summit Point, secretary, and Dr. William E. Perry, Halltown, treasurer.

North Central Ohio Medical Society.—The twenty-first annual meeting of this Society was held in Mansfield, March 28, at which the following officers were elected: Dr. Josiah S. Hedges, Mansfield, president; Drs. A. Melville Crane, Marion, and S. N. Alban, Mansfield, vice-presidents; Dr. John McG. Burns, Mansfield, secretary, and Dr. J. Lillian W. McBride, Mansfield, treasurer.

American Association of Pathologists and Bacteriologists.—This Association held its second annual meeting at Cleveland, Ohio, March 28 and 29. The following officers were elected for the ensuing year: President, Dr. Ludvig Hektoen, Chicago; vice-president, Dr. J. Ewing, New York City; secretary, Dr. H. C. Ernst, Boston, Mass., and treasurer, Dr. Eugene Hodenpyl, New York City.

CHICAGO MEDICAL SOCIETY AND CHICAGO SURGICAL SOCIETY.

Joint Meeting, held March 5, 1902.

Dr. A. H. Ferguson in the Chair.

Cholelithiasis.

The first paper, "Medical Aspect of Cholelithiasis," by Dr. Robert B. Preble, appears in this issue, page 938.

DR. WILLIAM J. MAYO, Rochester, Minn., read a paper (by invitation) entitled, "An Analysis of 328 Operations Upon the Gall-Bladder and Bile Passages." A study of these cases brings out some general features of interest. The origin was benign in 311 and the number of deaths was 8, giving a mortality of about 2.5 per cent. In 17 for malignant disease, there were 3 deaths, a mortality of 18 per cent. In 214 cases, the stones were located in the gall-bladder or cystic duct or both, with 2 deaths. In about 10 per cent. of these cases stones were contained in the cystic duct. The after history of many of these cases, in which the cystic duct was involved and simple cholecystostomy performed, was not wholly favorable and for cases in which this duct has been obstructed or in which stones have been lodged in the duct for a length of time, cholecystostomy is insufficient, and the gall-bladder should be extirpated at the primary operation if the patient is otherwise in good condition.

Stones in the cystic duct are often more easy to remove with the gall-bladder than without it. If the peritoneum binding it to the liver be divided on each side, the connective tissue between can be easily separated with the finger and by using the gall-bladder as a tractor, and if necessary, dividing the peritoneal and muscular coats just above the cystic duct, the mucous tube of the latter will strip out readily, bringing the stone with it. The mucous coat about the neck of the gall-bladder is thick and separates easily from the outer coats, while the fixation by adhesions is to the outer coats alone. At the fundus, the mucous membrane is less easy to separate and a combination of amputation of the fundus with removal of the mucous coat from the lower portion of the gall-bladder and

cystic duct, makes cholecystectomy a safe operation. A study of these cases leads to the belief that stones passing by ulceration and perforation from the bile tract to the intestine do so slowly and that cicatrization usually takes place behind, before the extrusion into the intestine is accomplished.

The cases of cholecystitis numbered 34, with 5 deaths. This mortality calls attention at once to the serious nature of the infections. All cases in which an acute suppuration existed at the time of the operation, with or without stones, and all cases in which the gall-bladder was found thickened and contained more or less ropy mucus and bile or sand-like sediment, without stones, were classified at the time of operation as cholecystitis. The author has long held the view that the dependent fundus was a mechanical factor which rendered the possibility of stone formation in cases in which the stagnation of the bile, infection of the gall-bladder and obstruction at the cystic duct were the other factors, that is to say, if the cystic duct were the bottom, the sediment would pass out first. In 31 cases, stones were found in the common duct with one death. In only one case was it possible to remove the stone through the cystic duct by dilating it. In 29 cases, the duct was incised and the stones removed. In 5 cases this was accomplished by separating the gall-bladder from the liver and incising the free surface down to and along the cystic duct to the common duct and the latter was incised at the juncture.

Jaundice in connection with stones in the common duct was a most variable feature. In many cases it was so slight as not to attract especial attention and the finding of stones in the common duct was a surprise. In the majority the jaundice was marked. One case of extreme jaundice, from a stone impacted in the cystic duct at its juncture with the common duct, and three cases of jaundice from malignant disease died from post-operative capillary oozing. In all of these cases there were subcutaneous ecchymotic spots, looking like purpura hemorrhagica before operation. Every case of jaundice with this condition died in this way. No case in which this was not present died from this cause, although several were in extreme jeopardy.

Cholecyst-enterostomy was performed three times for chronic pancreatitis and three times for malignant disease. The anastomosis was made to the duodenum twice and to the transverse colon four times. So far as we could judge, the anastomosis with the colon answered every purpose. Malignant disease, involving the bile tract, was found seventeen times; the results were very discouraging.

Diagnosis of Gallstones.

DR. FRANK BILLINGS said the diagnosis was helped somewhat by a knowledge of conditions which led to gallstones. For instance, knowledge that an individual had suffered from typhoid fever, chronic or infective gastro-intestinal disease, colon bacillus infection of other parts of the body and of the gall tract, pneumonia or possibly colonic infection, would help in making the diagnosis. The age of the patient, if the diagnosis was doubtful, would be of considerable aid. Gallstones rarely occur before adult life, but with increasing frequency after that period. They occur oftener in the female than in the male, because of the former's manner of dress and more sedentary life. Courvoisier, quoted by Osler, states that 25 per cent. of all women over 50 years of age have gallstones. The previous condition of health should be duly considered. Stones remain in a latent condition for a considerable time in some cases without causing symptoms, or so slight are the symptoms as to be attributed to something else, and not until some accidents due to gallstones occur are we led to the correct diagnosis. A large percentage of people die of some other disease and gallstones are found postmortem.

Pain was usually present in cases of stones, but cases occurred without pain. When pain was present it was usually different from pain of almost every other kind, and severe, considering the small part of the body that was involved. Perhaps a small stone causes a more severe pain than a larger one. The pain from stones in the cystic duct was much less than that from the same in the common duct. With stones in the cystic duct, the pain radiated, as a rule, to the right side, and was often felt in the region of the shoulder-blade. Pain from the common duct was more severe and radiated from just above the umbilicus downward and to the left, and might encircle the body in the region of the costal arch. Pain was accompanied, as a rule, with disturbance of the gastro-intestinal tract; nausea, vomiting and, if the common duct was not obstructed, vomiting went on until bile was vomited, the presence of bile in the vomit was good evidence that the common duct was not completely, if at all, obstructed.

The next important and common symptom was jaundice; it did not occur in uncomplicated cases. Dr. Preble had already gone over some of the differential diagnostic points. There were some others that might be mentioned, for instance confounding gallstones with floating kidney. Women were sometimes seized with a sudden attack of pain, more often on the right than left side, sometimes associated with jaundice, and a recognition of floating kidney, its replacement, etc., would enable one to differentiate it from gallstones. Gumma of the liver was usually multiple, associated with a remittent type of fever, but it was not always multiple. It was possible for it to be situated near the gall-bladder, and cause symptoms similar to those of gallstones. He had seen two such cases, in both of which a diagnosis of gallstones was made.

Dr. Billings then quoted at length the statistics of gallstones as found in the literature, the number that had been seen and operated by different surgeons, the results, mortality, etc.

Indications for Surgical Intervention.

DR. ARTHUR DEAN BEVAN said that he could not agree with those surgeons who say that whenever a diagnosis of gallstones is made a surgical operation is indicated. In his own dissecting room experience during a large number of years, 16 per cent. of cases had stones, and he thought it would be safe to say that from 8 to 10 per cent. of the adult population in most communities had gallstones. Taking this approximate estimate, it led to the conclusion that in a great number of cases the gallstones were innocuous.

With the very brilliant results that had been obtained by surgical treatment, with the very low mortality resulting from it in expert hands, the indications for operation were very much wider than they ever had been. These indications he summarized as follows: 1, cases in which there is obstruction of the cystic duct, either the direct or indirect result of gallstones; 2, cases of obstruction, the direct or indirect result of continuous or intermittent attacks; 3, cases of perforative inflammation of any part of the bile tracts, including the gall-bladder.

This leaves a great group of cases without symptoms of obstruction or a perforative inflammation, but symptoms in the majority of cases of stones remaining in the gall-bladder. Such cases go from physician to physician, many of them diagnosed as cases of dyspepsia or gastric neuralgia. Medical men were beginning to recognize this class of cases and recommend surgical intervention more frequently now than formerly. Another group was where the patients had gallstones, probably recognized, but in whom the attacks were infrequent. These cases required the combined judgment of the internist and surgeon as to the desirability of surgical intervention.

Real and Apparent Recurrences After Operation.

DR. E. WYLLYS ANDREWS discussed this question. Do gallstones ever reproduce themselves after operation, or, does the removal of gallstones fail to cure the patient who has them? These were two very different questions in the last analysis and might require opposite answers. Often the condition may not be new stones in the bladder or ducts, but old ones purposely or accidentally left or else kinking of the cystic duct, stenosis from carcinoma, adhesions, or other mechanical cause for hydrops of the gall-bladder. But of apparent recurrences numerous instances did occur. Formerly he thought and taught that gallstones would reproduce *a priori* as urinary bladder and kidney calculi were known to do. After reading the positive statements of Courvoisier, Riedel, Kehr, and others, he searched carefully in his records and could not find one unmistakable case of stone reproduction, i. e., one in which an overlooked stone, ulcer or cancer of the gall tracts,

old adhesions, or some other cause might not explain the recurrence of symptoms. Riedel says that gallstone reproduction does not occur because the drainage cures the gall-bladder inflammation and stops their formation. Even if a few are left, they come out on the dressings. Dr. Andrews thought this was bad teaching if it led to superficial work. It was the exact opposite of what Dr. Fenger's example would lead to. It also took no account of choledochous stones which never would come out if left alone. Riedel also states that he has operated twelve years on gallstones, and never had a real reproduction of stones. Kehr in one thousand cases of his own and Riedel had no proved case of reproduction. He thinks gallstone reproduction is an occurrence usually which takes place once in a lifetime.

Leaving out of account diseases of neighboring parts, such as the kidney, ureter, cecum or appendix, all of which might give pain like hepatic colic, there was quite a list of post-operative troubles of the gall tracts themselves which we were powerless to prevent and which might defeat all efforts at relief. Among these were adhesions to viscera and anterior wall; hernia in drainage scar; cholecystitis, still uncured; stones accidentally left and stones knowingly left. Stones were very unsatisfactorily felt when the gall-bladder was not opened. Those surgeons, who did the two step operation, often knew very little of how many should come out later. There always would be a few cases to be operated on in the most conservative and rapid manner, and with a minimum of anesthetic or local anesthesia. The aim in doing an incomplete operation was to relieve the cholemia and later complete the operation. Stones intentionally left were not recurrences; stones accidentally left were, it was to be hoped, less common than at first. He would state it as his observation that this had occurred oftener in the past than some operators would lead one to think. As he looked back on his earliest work, before the common duct operation was elaborated by Fenger, he could think of several cases lost through inefficient search, and the now discredited idea of crushing stones through the duct wall. Some of these continued to have jaundice after the gall-bladder had been cleared of numerous stones.

It was unfair to demand more of surgeons than a good majority of cures. Internists with the Carlsbad cure only succeeded in reducing the stones to a quiescent or sleeping state. We did not in any operation get a uniform series of cures, but this did not discredit the operation. The only thing which could discredit any operation was a failure to report bad as well as good results, so that false statistics gained currency.

The treatment of complications causing recurrence of gallstone symptoms was often satisfactory from a surgical standpoint. An overlooked carcinoma might be detected at a later exploration. Stones purposely or accidentally allowed to remain might be taken out after the patient had been built up by drainage. Adherent bands might be divided to release the gall-bladder, but broad adhesions were difficult to remove. A puncture might be made in a bladder once drained through the old adhesion with little or no danger. Finally, cholecystectomy, as advised by William J. Mayo, Lobker, Kehr, Langenbuch and Korte, was an admirable cure for some of the unpleasant sequelæ of gallstone work.

Relation of Gallstones to Fat Necrosis.

DR. WILLIAM A. EVANS discussed the anatomic connection between the bile ducts and the pancreatic ducts and said the wonder is not that there should be a relation between disease processes situated in these two structures, but that that relation is not more apparent than it is. Stones passing down the bile ducts are prone to locate at various points in those ducts, and the results that ensue depend in a measure upon the location of the stones. He mentioned four cases of fat necrosis which he had collected up to last summer accompanied, and perhaps caused, by gallstones, and said that in not one of them, so far as he was able to demonstrate, was there stone obstruction at the time of death. Since last summer he had knowledge of eight cases of fat necrosis in this vicinity associated with gallstones. In most of the cases he had seen there was a history of repeated attacks of gallstone colic. In three cases the attacks began much as did the others, but the patients, instead of getting well after the stones had passed, continued to suffer. The pain and tenderness were irregular in their distribution, in one case shifting around the abdomen in a rather peculiar fashion. The sense of discomfort and uneasiness was rather more marked than the pain. Another marked symptom was a cyanosis that amounted to lividity. Neither the fever, pulse nor respiration was very suggestive. Abdominal inspection postmortem and operative, showed the changes to be those of fat necrosis. None was hemorrhagic in type. None showed much digestion of proteids. In two of the cases that came to autopsy the liver, duodenum, stomach and pancreas were removed en masse, and the ducts were carefully searched. They were radically examined in two other cases. In none was obstruction to the common or the pancreatic duct found. He thinks that old gallstone cases are liable to eventuate in fat necrosis.

DR. MAYO, in closing, stated that uncomplicated cases of gallstone disease gave a very small mortality. Considering the low mortality of early operation, he believes it will only be a short time when internists will send their gallstone patients to surgeons as promptly as they now send them their cases of chronic appendicitis.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Regular Meeting, held March 17, 1902.

President, Dr. Parker Syms, in the Chair.

Smallpox and Its Differentiation.

DR. CHARLES S. BENEDICT read the opening paper in the symposium on smallpox. He said that so anxious were many persons to call smallpox by some other name and thus conceal its true nature that it was not uncommon at the present time to meet with it under such names as "Cuban itch" and "Philippine measles." Varioloid was not recognized officially by the health department for it was nothing more than a very mild type of smallpox, demanding the same isolation and care. The presence of a rigor, followed by high fever, headache, angina, lumbar pain and prostration should be sufficient to lead the physician to search for an eruption. The initial fever often felt suddenly by crisis and the secondary fever might be as severe as that of the first stage. The eruption of smallpox ordinarily made its appearance in from 24 to 36 hours after the chill, was at first macular and was completely out in about 24 hours. The macules were dark red and disappeared on pressure. They were followed in a few hours by the characteristically hard, shot-like papules, which were converted into vesicles by the sixth day, and into pustules by the ninth day. The hemorrhagic form of smallpox terminated fatally within forty-eight hours. Smallpox should be differentiated from varicella, measles, scarlatina, malignant endocarditis, cerebrospinal meningitis, erythema multiforme, papular syphilides and pemphigus. In varicella there was not the hard papule of smallpox and umbilication was rare. In measles no vesicles would be observed in the throat. Scarlet fever might be confounded with variola in the earliest stage of that disease only, but the erythema of variola was ephemeral except in the hemorrhagic form, and did not disappear on pressure. In the hemorrhagic form the mucous membranes were apt to bleed, which was not the case in scarlet fever. The petechial rash associated with malignant endocarditis was more likely to be mistaken for typhus fever than smallpox. Heart murmurs would not aid in the differentiation, but the duration and course of the disease would do so. The appearance presented by pemphigus and the absence of constitutional symptoms should serve to readily differentiate it from variola. Of course, the lesions of vaccinia very closely resembled those of variola, but the lesions were much more scanty and the duration of the disease was limited to nine days. In the early diagnosis of smallpox no one symptom or sign should be relied on implicitly.

Smallpox and Its Treatment.

DR. S. DANA HUBBARD was the author of this paper. He insisted that the surroundings of the smallpox patient should be as nearly aseptic as possible and, while the sick room or ward should be kept at a temperature of 70 to 78 F. and be

well ventilated, draughts of air should be carefully avoided, as the mucous membranes are exceedingly sensitive and pneumonia in such persons is very fatal. The attendants and visitors should wear large, loose gowns, rubber shoes, gloves and caps and these should be discarded in an anteroom. After the removal of the patient, the fumigation of the room should be conducted so thoroughly that at its completion the fumes would be so dense as to prevent one seeing through them for more than four feet. The smallpox patient and his surroundings must be kept scrupulously clean, the patient himself receiving a daily bath or sponging. After the bath the application of alcohol was grateful to the patient, but if there was much itching 5 to 20 per cent. carbolized oil should be used. During the stage of suppuration the water of the bath should contain from half a grain to two grains of permanganate of potassium to the ounce and the patient should be given quinin internally, though unusually small doses, because of the peculiar susceptibility to quinin exhibited by this class of persons. In septic cases alcoholic stimulants should be given very freely, remembering the injunction of a well-known physician, "Don't let them die sober." During the vesicular and pustular stages it was desirable to prevent rupture of the lesions. He thought if outside infection could be prevented pitting would not occur, nevertheless but little progress had been made in this important part of the management of smallpox cases. The too early removal of the scabs should be prevented. A mixture of boric acid and glycerin, applied constantly under a mask, he had found to act very well. The patient should be very thoroughly scrubbed and scraped and bathed in bichlorid solution before being discharged.

What Constitutes Efficient Vaccination?

DR. FRANK S. FIELDER read this paper. In answer to the important question propounded in its title, he defined efficient vaccination as that which secures to those vaccinated, 1, the smallest proportion of smallpox cases per thousand individuals; 2, the longest duration of immunity among those who finally take smallpox; 3, the lowest mortality among those who contract the disease, and 4, the mildest course of the disease and the least amount of subsequent pitting in those who survive it. A good vaccination scar is whiter than the surrounding skin, having a regular and well-defined outline and a depressed and sometimes slightly striated center surrounded by a foveated ring. The latter corresponded to the area of active vesiculation, and the center represented either the original area of scarification or a cicatrix following the separation of a more or less deep central slough. The size of the scar depends partly upon the scarification and partly on the activity of the virus. Occasionally there would result a poor scar from a vaccination running a typical course, but the rule was that a good vaccination yields a good scar. Dr. Fielder then quoted at length from foreign statistics bearing on the question as to the number and quality of the vaccination scars and the duration of immunity. Thus observations had been made in London by Dr. E. C. Seaton and Dr. Buchanan in the smallpox epidemic of 1863 on about 50,000 cases. Their tables show that the smallest proportion of smallpox cases per thousand was found in those who had been vaccinated in four or more spots and presented scars of excellent quality. R. Cory, in a series of observations on 448 persons who had had smallpox, came to the conclusion that vaccination by multiple insertion gives slightly longer immunity to smallpox than the one-spot method. J. F. Marson, who for more than thirty years was the resident physician of the London Smallpox Hospital, concludes that the efficiency of the vaccination is in exact ratio to its excellence and completeness, as shown by the number and quality of the resulting scars. W. M. Welch made a similar study of his cases while in charge of the Philadelphia Smallpox Hospital for more than twenty-five years, and concluded that the quality of the scars is a far more reliable indication of the degree of the protection than the quantity and that when the scars are typical it makes no difference whether they are single or multiple. Dr. Fielder closed his paper by accepting Marson's conclusion that "test the question in whichsoever way we will the result is in favor of producing four vesicles at least at vaccination with lymph which leaves good permanent cicatrices."

DR. JOHN H. BRANTH was of the opinion that some of the great epidemics of smallpox in England and Ireland had been favorably influenced by the process of inoculation and that it was probably safer to perform inoculation at a time when there is no epidemic of smallpox. Some light, he said, might be thrown upon the nature of vaccination by the statement of Ernest Hutchinson, D.V.S., of Portland, Ore., U. S. Inspector of Animal Industry, that the tubercle bacilli from one species can not be transplanted with the same success to other species, and that if successful, a modification of the virulence takes place. It was possible that vaccinia might be due to modified virulence like that claimed by Hutchinson for tuberculosis of different species. It had been contended by the antivaccinationists that compulsory vaccination was an infringement of personal liberty, but to allow an unvaccinated person to remain in our midst and thus menace our well-being was an infringement of our personal liberty.

DR. WILLIAM DOLZ said that he had been engaged in taking care of 1300 cases of smallpox in the province of Santiago, Cuba, and had adopted essentially the treatment outlined by Dr. Hubbard. They had been given a bichlorid of mercury bath, 1 to 5000, once, twice or three times a day, the worse the eruption the more frequent these baths. Half of the cases were confluent, two-thirds not vaccinated and the surroundings most unfavorable. Despite these drawbacks the mortality rate was 10 per cent. These 1300 had been discharged within a period of ten weeks and although for over a year previously an epidemic of smallpox had been raging and had carried off over 4000 people, no new cases had developed in that district in the three years that had elapsed since that time.

DR. DAVID P. AUSTIN was of the opinion that Dr. Fielder's quotations from hospital statistics were misleading because in certain countries it was the rule to make three or four insertions at the primary vaccination, thus vitiating the results of any subsequent investigation into the number of vaccination scars present. Two vaccinations, made at different times, protect better against smallpox than one vaccination consisting of several insertions. At one time he had vaccinated 10 children successfully, and one month later had again successfully vaccinated 8 of these children. At the end of the second month 6 of the children were again successfully vaccinated, and at the end of still another month 6 of the children were vaccinated with 4 successes. One vaccination should not be relied on for any length of time for protection. He had records of 10,000 vaccinations of public school children that he had done and these showed that between 60 and 65 per cent. of these vaccinations had been successful. Of those vaccinated only once before, 40 or 50 per cent. were successful, while there were only about 8 per cent. of successes in those who had been previously vaccinated four or five times. In his opinion, immunity was that condition which protected the person from smallpox for the balance of his life. In some persons, four or five vaccinations were necessary to establish this immunity, but when once secured it lasted for life.

DR. FIELDER, in closing, agreed with Dr. Austin regarding the superior results obtained from repeated vaccination as opposed to simultaneous insertions. That immunity to smallpox and to vaccination are not the same had been demonstrated by a resident physician of the smallpox hospital on North Brother Island. This gentleman, though living in the midst of smallpox and not contracting the disease, was able to successfully vaccinate himself. There was no way of determining how long a time a given individual would remain immune by reason of a vaccination.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held March 6, 1902.

President, Robert F. Weir, in the Chair.

The Use of the X-Ray in the Treatment of Some Forms of Cancer.

DR. FRANCIS H. WILLIAMS, Boston, said that it was immaterial whether a static machine with large plates was used or a coil for the generation of the *x*-ray. There should be an adjustable spark-gap and the tube-holder should be so ar-

ranged as to conveniently focus the rays on the part to be treated. For this purpose he was accustomed to make use of a box painted inside with white lead, having an opening in the bottom for the exit of the rays. By means of a suitable lead screen a cone of rays a little larger than the area to be treated was brought to bear on the diseased part. For the treatment of growths within such cavities as the mouth and vagina, it was desirable to pass the *x*-rays through a cylindrical glass speculum passed through the center of a screen of sheet tin. At first, an exposure of only five or ten minutes should be given, three times a week, but the time of exposure may be gradually increased to twenty minutes or more. The exposures should be especially brief in the case of actively growing tumors. The sound tissues are not affected by the exposures required for this method of treatment. Dr. Williams said that a microscopic diagnosis had been made for him in almost every one of his cases, which included epithelioma, rodent ulcer, carcinoma, papilloma of the larynx, spindle cell sarcoma and keratosis. He thought it probable that most external growths could be made to disappear by the *x*-rays; but in the more advanced, though operable, cases one would have to choose between the *x*-ray and operation. In the inoperable cases, or where the patient declined operation, the *x*-rays should certainly be used. It was worthy of note that a trial of two weeks would ordinarily be sufficient to show whether or not the *x*-rays would avail in a given case of epithelioma. Thus far, every external new growth that he had subjected to the *x*-ray had healed or was rapidly improving. He believed this treatment would prove beneficial in certain forms of cancer of the breast, and nodules recurring in the scar of operation were certainly amenable to this new agency. The absence of any dread of operation, the painlessness of the treatment and the excellent cosmetic effects secured would prove potent factors in bringing many patients under observation at a much earlier stage than heretofore. At the present time, however, the physician was not justified in promising a good result from the use of the *x*-ray in the deeply-seated growths, and it was his duty to warn his patients of the present narrow limits of this method of treatment.

DR. WILLIAM JAMES MORTON said that he had found no occasion to employ the aluminum screen, for, while it could not be denied that such a shield cut off the electrostatic field, it was not the electricity but the *x*-ray that caused the burns. Neither did he make any effort to insulate the lead plates, but instead made use of common tin foil, which he found exceedingly convenient for the purpose. He had found the medium soft and the hard vacuum tubes the best for this class of work and had learned to divide his cases into four classes, viz., 1, exterior or superficial; 2, interior growths situated beneath a healthy skin; 3, operable cases and, 4, inoperable cases. A rather soft tube should be used for the treatment of cases of the first class. As regards the operable cases, he did not feel at present like advising the use of the *x*-ray in preference to the knife, though he had found carcinoma of the breast, both initial and recurrent, yield well to the *x*-ray. Dr. Morton reported, among others, one case, proved by the microscope to be carcinoma of the breast, in which, after three operations, he had made use of the *x*-ray, and had apparently effected a cure. A patient was shown who was still undergoing treatment for a large osteosarcoma behind the ear. The young woman had received 20 treatments and only about one-tenth of the growth now remained.

DR. WILLIAM B. COLEY described his experience with this treatment. Several cases of sarcoma had shown no permanent improvement, but one case of lymphosarcoma and another recurrent small round-cell sarcoma of the neck had shown marvelous improvement. This was particularly true of the latter case, which was accompanied by a complete history dating back ten years.

DR. CHARLES W. ALLEN exhibited a case of lupus of twenty years' standing that had been apparently cured by the *x*-ray. He said that he had almost invariably noted cessation of pain after the first treatment.

DR. PERCY TURNURE briefly narrated his experience at the Roosevelt Hospital, and showed two patients, one a case of epithelioma of the face, and the other an erythematous lupus of the same region. He said that his results in carcinoma had been discouraging.

DR. GEORGE C. HOPKINS, Brooklyn, said that he, too, would dissent from the view entertained by the reader of the paper concerning the necessity for using the screen. He had treated a very large number of cases and had never produced an *x*-ray burn. Most of his work had been with recurrences in the line of operation scars, and here he had met with considerable success. He believed that if a static machine and a low vacuum tube were used there would be little danger of producing *x*-ray burns.

DR. H. G. PIFFARD thought many of the external growths that had been treated with the *x*-ray could have been treated just as successfully, and in a much shorter time, by curettage and the application of the galvano-cautery.

DR. WILLIAMS, in closing, said that as it was possible to produce a dermatitis even when a screen was used, and that it was also possible to produce a severe burn by the brush discharge, it seemed to him wiser to make use of a screen and so reduce to a minimum the risks of this method of treatment.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Rectal Alimentation.

The technique of rectal alimentation must be properly carried out if the best results are obtained. The importance of a proper knowledge of the preparation of the food and the method of its introduction is evidenced by the number of diseases in which it must be used. Mention may be made of some of these conditions, such as ulcer and carcinoma of the stomach, persistent vomiting from any cause, and certain abdominal operations.

In cases of tubercular laryngitis the pain is so severe that the swallowing of food in any form is almost impossible; in diphtheria rectal feeding is sometimes necessary. In the treatment of appendicitis, where surgical measures are not carried out, complete rest of the intestinal tract is sometimes advised for a number of days, during which time the patient may be sufficiently nourished per rectum, thus lessening the peristalsis otherwise produced by food introduced per os.

It is important to bear in mind that the lower portion of the large intestine has not the power to digest, and consequently any alimentation thus introduced should be predigested or peptonized. Some authors state, among them Ewald, that milk will be properly assimilated when introduced per rectum. Others are in the habit also of giving raw beaten eggs and beef juice, but it is a question whether any of them are of great nutritive value when given without first undergoing the process of predigestion.

Dr. N. S. Davis, Jr., in the "System of Phys. Ther.," states that peptones are well absorbed. So also is the white of an egg when a little salt is mixed with it. Raw beef juice in his opinion is completely absorbed. Sugar is readily absorbed, but is especially liable to provoke diarrhea, for in concentrated solution it irritates the mucous membrane of the bowel. It will, however, be retained if introduced in a solution of not more than 20 per cent. strength. Starch, according to Davis, is perfectly absorbed, while fats are not absorbed. He gives no reason why the above substances are absorbed when they have not been predigested, except that the epithelial cells of the mucous membrane are probably capable of modifying them chemically. By reversed peristalsis, food introduced by the bowel may reach the small intestine unless there be some obstruction along the course of the canal.

Yeo holds a contrary opinion and states that only water, salts and peptonized foods can be absorbed. It should be remembered that the mere retention of the enema is no evidence that the patient is being nourished. Rectal alimentation, as

has been stated, may supply sufficient nourishment, when employed, for a limited length of time and should only be resorted to as a temporary means of tiding a patient over until his stomach is again able to properly retain and digest the food. The lower bowel should be properly prepared to receive the nutrition by first flushing it out with a high enema of plain water or of weak soap suds. Then the patient should rest about one hour before the food is introduced. The patient should be instructed to lie flat on the back with the hips slightly elevated or upon the left side. The nutrient enema should be given at about 100 F. The tube should consist of an ordinary flexible large catheter to which is attached a glass tube five or six inches in length, to which in turn is attached a funnel which should be held at an elevation of two or two and a half feet above the bed. The tube should be inserted at sufficient length into the bowel so that the upper end will have passed above the sigmoïd flexure and the fluid allowed to run slowly into the bowel.

The amount to be introduced at each feeding should not exceed six or eight ounces (180 or 240 c.c.); larger amounts are liable to provoke increased peristalsis and cause evacuation of the contents. Irritation of the bowel must be avoided if possible by not feeding oftener than once in six hours; if necessary five to ten drops of tinctura opii may be added to each feeding to lessen the irritability of the mucous membrane.

Dujardin-Beaumetz advises the following nutrient enema: One glass of milk to which is added the yolk of one egg beaten up; then add 2 dessertspoonfuls of solid peptones or 2 tablespoonfuls of liquid peptones, and 7 or 8 grains (one-half gram) of sodium bicarbonate.

Daremberg, as stated in the "Manual of Clinical Therapeutics," states that he kept alive a patient who was suffering from stricture of the esophagus, for fourteen months by means of a peptonized enema prepared in the following manner: Place in a glass vessel 7500 grains (475 grams) of finely minced meat as lean as possible; pour on this about 100 ounces (3000 grams) of pure water and an ounce (30 grams) of hydrochloric acid of a density of 1.15. To this add 40 grains (2.5 grams) of pure pepsin. Digest this mixture for 4 hours at a temperature of 112 F. Then let it boil, adding meanwhile a solution of sodium bicarbonate (17 grains to the ounce, or 1 to 30) until the mixture has a slight alkaline reaction; this will require 5 or 6 ounces (150 or 180 grams) of the solution. Strain the liquid and concentrate to 50 or 60 ounces (about one and three-quarters kilograms). Half this amount is given by the rectum daily.

Ewald's formula is as follows: Beat up two or three eggs with a tablespoonful of cold water; boil a teaspoonful of flour with a 20 per cent. solution of grape sugar and add a wineglassful of red wine; stir the egg slowly into this mixture when it has cooled. The above mixture is an indication of his opinion that the absorption of nutrient enema may take place without peptonization.

Leube recommends the following as a nutrient enema: Take about 5 ounces (150 grams) of finely scraped meat; chop it still finer, add to it one and a half ounces (45 grams) of finely-chopper pancreas free from fat, then add about 3 ounces (90 grams) of luke warm water and stir to the consistence of thick pulp.

Ordinary peptonized milk is, for all practical purposes, the best food for rectal nourishment. It may be prepared as follows: To three parts of pure milk add one part of water. Pour one pint of this mixture into a jug after bringing it to a boil. When it has cooled down to about 140 F., one or two teaspoonfuls of liquor pancreaticus and a little sodium bicarbonate should be added. Set aside for one hour and boil again for one or two minutes; cool to 100 F. and the enema is ready for use.

The following nutrient enema is sometimes used, prepared according to Scheffer's formula:

℞.	Infusi carnis (beef tea)	℥iv	124
	Acidi hydrochlorici	m. x	60
	Pepsini glyceriti	℥ii	7 50

M. Sig.: As a nutrient enema.

Bidwell gives the following formula:

℞.	Milk	℥ii	62
	Beef tea	℥ii	62
	Yolk of egg	i	
	Sol. pancreatici	℥i	3 75

M. Heat one hour before use at a temperature of 100. Sig.: Use as an injection once in six hours.

A very good combination may be prepared as follows:

℞.	Beef peptonoids	℥ii	7 50
	Yolk of egg	i	
	Spts. frumenti	℥ss	16
	Tinct. opii	m. v	33
	Sodii chloridi q. s.		
	Peptonized milk	℥vi	186

M. Sig.: Use as an enema once every six hours.

Leube also recommends the following formulæ:

℞.	Peptone	℥ii	62
	Milk	℥viii	248
Or:			
℞.	Three eggs		
	Sodium chlorid	gr. xlv	3
	Milk	℥viii	248
Or:			
℞.	Grape sugar	℥ii	62
	Milk	℥viii	248
Or:			
℞.	Starch	℥ii	62
	Milk	℥ix	280

N. S. Davis, Jr., employs the following:

℞.	The white of three eggs.		
	Starch	℥ii	62
	Sodium chlorid	℥i	3 75
	Water	℥viii	248

Somatose, the predigested meat preparation, is an admirable product for rectal alimentation. There is also upon the market a great variety of peptone preparations of predigested meat in powder form, which may be used in the preparation of nutrient enema.

Medicolegal.

Telling Character of Injury Not Waiver of Privilege.—The third appellate division of the Supreme Court of New York says, in the case of Dunckle vs. McAllister, that no court, it believes, has yet gone so far as to hold that it is a waiver of the right conferred by statute to enjoin secrecy in an attending physician, when all that can be said is that the patient himself became a witness and told the character of the injury he was suffering from. That appearing to be all that the patient did in this case, the court holds that there was no error in excluding, upon his objection, the opinions of certain physicians, formed from an examination of his wound while attending him as a patient, that it was not a gunshot wound, but the result of a blow.

Statements of Injured Person to Physician.—The Supreme Court of Ohio holds, in Pennsylvania Company vs. Files, a personal injury case brought by the latter party, that testimony of a physician, who had made an examination of the party before the trial, as to statements made by the party at that time, in regard to his suffering from the injury, was incompetent as evidence, the examination not having been made for the purpose of treating the party, but for the purpose of enabling the physician to testify as an expert at the trial. Such evidence, the court says, is to be distinguished from evidence of a like character, given by a physician called on for treatment. In such case, what the patient may say to his medical adviser as to his condition and how he suffers may be admitted. It is to be presumed in such case that he states the truth, as it is to his interest that he should do so, and not mislead the physician by false statements as to his condition. He is under a strong motive in such case to state the truth, and it

is on this ground that such evidence is admitted. But where the physician is called on, not for the purpose of treatment, but to enable him to give evidence in a pending or proposed suit, no such sanction of the truth of what he says exists. On the contrary, he is under a strong motive to deceive the physician, and, not being under oath, may, with impunity, make such statements as he sees fit. What he says to a physician under such circumstances is self-serving in character, and should not be admitted in evidence; and, for a stronger reason, like statements made to third persons, not physicians, under similar circumstances, are incompetent.

Illinois Medical Practice Act and Osteopathy.—The Supreme Court of Illinois says, in the case of People, to Use of State Board of Health, vs. Gordon, that it thinks it clear, from the several sections of the act of 1899 to regulate the practice of medicine in the state of Illinois, that the State Board of Health is authorized to divide those who desire to practice medicine in this state into two classes; that is, those who desire to practice medicine and surgery in all their branches, and those who desire to practice any other system or science of treating human ailments without the use of medicine or instruments. In this case, the party said that his treatment was a mental science. But he said, too, "I first make a diagnosis. Then I remove the cause for that condition by working and freeing the nerve force. . . . I get as near the muscles as I can. If a person is fleshy, it takes more force." He also flexed, or, as one witness said, bent the limbs. The court declares that it is at a loss to perceive how it could be said that his own testimony did not tend to show that he did treat and operate on patients for physical ailments, within the meaning of section 7 of the act, which defines who shall be regarded as practicing physicians, within the meaning of the act, as including both classes above mentioned, and defines the practice of medicine as including all "who shall treat or profess to treat, operate on or prescribe for any physical ailment or any physical injury to or deformity of another." In short, the court thinks that all the testimony tended to show that he practiced what is known as osteopathy, at least, the treatment was of that nature. It says further that it hardly thinks that the large school of osteopathists and those who believe in their method and system of treatment, would be willing to concede that such treatment is no more than that which a trained nurse might administer. While it may be truthfully said that it is not the practice of medicine in the common acceptation of that term, it can not be claimed that it does not "profess to treat, operate on or prescribe for any physical ailment or any physical injury to or deformity of another," and certainly it can not be insisted that such persons do not practice another "system or science of treating human ailments without the use of medicine internally or externally." Nor is the court able to see how, under his own evidence, the position advanced could be maintained that he was exempt from the operation of the statute by the last clause of the proviso to section 7; that is, that he was a person "who ministers to or treats the sick or suffering by mental or spiritual means, without the use of any drug or material remedy.' Very clearly this provision, the court says, means that those who pretend to relieve the ailments of others by mental or spiritual means shall not be considered within the act; but if this party, under the proof in this case, could bring himself within that exception, then every one who treats diseases without administering medicine, either externally or internally, could also be brought within the exception. Few, perhaps, if any, physicians attempt to treat the sick and suffering without appealing to the mental faculties, to a greater or less degree, in aid of the remedies they apply or prescribe; but that is not treating the sick by mental or spiritual means. Again, the court says, that merely giving massage treatment or bathing a patient is very different from advertising one's business or calling to be that of a doctor or physician, and, as such, administering osteopathic treatment. The one properly falls within the profession of a trained nurse, while the other does not.

Authority Required for Appointment of Health Officer.—The Court of Civil Appeals of Texas says, in the case of Brumpy vs. Boyd, that the right on authority is select and appoint public officers is one of the highest prerogatives of sovereignty, and the delegation of such authority by the sovereign power must be clearly shown by the person claiming the right to exercise the same. The power to appoint officers—excepting, perhaps, those who are to assist him in the discharge of his personal executive duties—is not inherent in the chief executive, but must exist, if it exist at all, by virtue of the authority conferred upon him by the sovereign power. Consequently, for example, unless the sovereign power, the people, have, through the act of their legislature granting a charter to a city, conferred upon the mayor thereof the power to appoint a health officer to temporarily fill a vacancy in that office, caused by the death of the incumbent, the mayor has no such power, and any appointment made by him is absolutely void. A provision in a city charter that "in case of a vacancy in any elective office, from whatever reason, the council, upon nomination by the mayor, shall fill the vacancy by the election of some person by a vote of a majority of the aldermen elected and qualified," does not authorize the executive to make a temporary appointment of a health officer in the recess of the confirming or concurring body. Neither can act in the matter independent of the other, and no legal appointment, temporary or otherwise, can be made unless concurred in by both the mayor and a majority of the board of aldermen. But it was urged that upon the failure of the mayor and board of aldermen to agree upon a suitable person the right of the mayor to make a temporary appointment would arise from public policy, which requires that a vacancy in a public office should be filled. It is true, the court replies, that the law does not favor a hiatus in office, and the welfare of the citizens demands that a vacancy in the office of health officer of a city should be filled; but the city council of the city, to whom alone the authority to fill such vacancy was delegated, having failed to perform that duty, and there being, as before shown, no inherent power in the mayor to make such appointment, the office must remain vacant until filled in the manner prescribed by the law. Nor does the court consider that the council could legally authorize one of the health inspectors of the city to perform the duties of health officer pending the filling of the vacancy in the office in the manner required by the charter; besides, both offices being offices of emolument, to allow one person to hold them in even that manner would be in violation of the state constitution. Then, either an appointment by the mayor or by the council, being not merely irregular and informal, but absolutely void, neither's appointee would have any colorable right to the office, nor could be regarded as the de facto health officer of the city.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record (N. Y.), March 29.

1 *The Relation of Surgery to Obstetrics. Edwin B. Cragin.
2 The Study of Quarantine in the Light of Modern Progress. Arthur H. Glennan.
3 *A Fatal Case of Gangrenous Appendicitis Without One Cardinal Symptom in the Course of the Disease. Samuel M. Evans.
4 *Cosmetic Considerations Not the Only Ones in Cases of Strabismus—The Importance and the Possibility of Securing Binocular Vision. Richard H. Derby.
5 *The Treatment of Internal Hemorrhoids. W. Duff Bullard.
6 Is the Mind an Entity? H. H. Stoner.

New York Medical Journal, March 29.

7 *The Obesity of Adolescence. Heinrich Stern.
8 The Relation of Local Disease to Nervous Disorders, Especially Neurasthenia. Frederic Coggeshall.
9 *The Radical Cure of Hydrocele by Minute (2-minim) Injections of Carbolic Acid. William B. Coley and Preston A. Satterwhite.
10 A Prostatectomy Forceps. Ramon Guiteras.
11 *Hippus. Richard C. Newton.
12 *Diabetes and the Eye. S. Busby Allen.

American Medicine (Philadelphia), March 29.

13 *Sand Filtration in Relation to Disease. James M. Anders.
14 *Observations on Bacillus Coli Communis from Certain Species of Domesticated Animals. Veranus A. Moore and Floyd R. Wright.

15 *The Treatment of Suppuration in the Uterine Appendages. Charles P. Noble.
16 Report on a Parasitic Disease in Horses, Mules and Caribao in the Philippine Islands. J. J. Curry.
17 *Movable Kidney; with Possible Explanation of Failure in Some Cases to Relieve Symptoms by Nephrorrhaphy. George H. Mallett.
18 *A Criticism of a Recent Discussion upon the Value of Certain Cases of Blood Examination. Robert N. Willson.

Philadelphia Medical Journal, March 29.

19 *Paresis: A Clinical Study of 149 Cases Occurring at the Philadelphia Hospital. William Pickett.
20 Somnolence Caused by an Ear Lesion. W. G. B. Harland. With Remarks by Charles H. Burnett.
21 *A Second Contribution to the Study of Anesthesia by Nitrous Oxid Gas and Ether. Prescott Le Breton.
22 *The Supra-orbital Reflex—An Explanatory Note. D. J. McCarthy.
23 Arterioscierosis and the Nervous System. Charles Lewis Allen.
24 A Case of Herpes Zoster Ophthalmicus. W. S. Durand.

Medical News (N. Y.), March 29.

25 *The Present Status of Serumtherapy in Typhoid Fever. James Ewing.
26 Surgical Complications of Typhoid Fever. Robert Abbe.
27 *The Detection of Typhoid Bacilli in the Feces as a Diagnostic Test of Typhoid Fever, and a Comparison of This Test with the Widal Reaction. Henry A. Higley.
28 *Remarks upon Some Experiences with the Widal Reaction. E. Libman.
29 Some Observations in Typhoid Fever. Frank S. Meara.
30 *Adrenal Substance in the Intestinal Hemorrhage of Typhoid Fever. Warren Coleman.
31 Pathology of Typhoid Fever. R. Alexander Bate.

Boston Medical and Surgical Journal, March 27.

32 *The Suture of Arteries. J. C. Hubbard.
33 *A Contribution to the Study of Catgut as a Suture and Ligature Material. Hugh Cabot.
34 *Neglected Methods for the Sterilization of "Gum-Elastic" Catheters. F. J. Cotton.
35 *Two New Methods of Operating for Retrodisplacement of the Uterus. Frederic Coggeshall.
36 *The Influence of School Life Over Health. Frank W. Wright.

Cincinnati Lancet-Clinic, March 29.

37 An Apoplexy in the Visual Center Without Any Other Symptoms of Motor or Sensory Paralysis. Louis Stricker.
38 When I Studied Medicine. Geo. J. Monroe.

Virginia Medical Semi-Monthly (Richmond), March 7.

39 Foreign Bodies in the Ears. O. A. M. McKimmie.
40 *A Case of Suture of a Stab-Wound of the Heart, with Remarks on and a Table of the Cases Previously Reported. George Tulley Vaughan.
41 Treatment of Delirium Tremens. T. D. Crothers.
42 Why Doctors Disagree—A Plea for a Modern Code of Ethics. Bittle C. Keister.
43 The Prophylactic Care of the Breasts Before and After Labor. John F. Winn.
44 Serumtherapy. Charles R. Grandy.

American Journal of Obstetrics (N. Y.), March.

45 *Chorio-epithelioma Malignum. Frank E. Pierce.
46 *Retroversion and Retroflexion of the Uterus. Edward P. Davis.
47 Primary Carcinoma of the Uterine Fundus. J. M. Baldy.
48 *The Uniform Principle in Performing Operations for Lacerated Perineum, Cystocele, Rectocele and Prolapse. Henry J. Kreutzmann.
49 *A Contribution to the Surgical Treatment of Laceration of the Female Perineum. J. Wesley Bovée.
50 The Technique of Amputation of the Cervix Uteri. Charles P. Noble.
51 On the Etiology, Histology and Usual Course of Ectopic Gestation. (To be continued.) Samuel W. Bandler.
52 *Some Observations on the Menopause. George W. Cook.
53 A Case of Grape-Like Sarcoma of the Cervix Uteri. Bache McE. Emmet.
54 Prolapsus Uteri. W. H. Wenning.
55 *Gonococcal Peritonitis: Report of Another Case. Louis Frank and Henry H. Koehler.
56 *Repair of a Complete Laceration of the Perineum in a Girl of 9 Years, Produced by the Finger of the Obstetrician at the Patient's Birth. H. A. Royster.

Interstate Medical Journal (St. Louis), March.

57 Bacteriemia. R. Kretz.
58 Tuberculosis of the Choroid; Tumors of the Choroid. James M. Ball.
59 Smallpox—The Present Epidemic. A. W. Brayton.
60 Double Optic Neuritis Occurring During Lactation. John Green, Jr.
61 Abdominal Tumors. Jesse S. Myer.

Medical Bulletin of the Washington University (St. Louis), January.

62 *Reflexes from a Sympathetic Ganglion. S. P. Budgett and C. A. Snodgrass.
63 *Notes on the Treatment of Syphilis. W. A. Hardaway.
64 *The Report of 18 Cases of Various Eruptions Associated with Malarial Infection. Martin F. Engman.
65 A Case of Keratosis Follicularis (White). Joseph Grindon.
66 A Case of Syphilitic Iridocyclitis.
67 A Case of Tertian Remittent Fever with Profuse Skin Eruption. H. Clay Creveling.
68 Suppuration of a Dermoid Cyst of the Ovary, Caused by Infection with the Typhoid Bacillus. Ernest Jonas.
69 A Case of Acquired Knock-Knee. F. B. Hall.
70 Carcinoma of the Scalp. W. M. Robertson.

Journal of Advanced Therapeutics (Rahway, N. J.), March.

71 General Consideration of Electro-therapeutics. Ernest Wende.
72 Ozone in Tuberculosis. J. D. Gibson.
73 The Effects of Electro-static Modalities upon Hyperemia and Pain. William B. Snow.
74 Therapeutics of Dry Hot Air. Clarence E. Skinner.
75 The Turkish Bath. Charles H. Shepard.

Annals of Surgery (Philadelphia), March.

76 *Suture of the Abdominal Wall. Charles Davison.
77 *Epiplopexy in Cirrhosis of the Liver with Ascites. Gaston Torrance.
78 *On Splanchnoptosis and Its Surgical Treatment, with Report of a Case. Henry A. Ingalls.
79 *Abdominal Contusions Associated with Rupture of the Intestine. Homer Gage.
80 Traumatic Rupture of the Mesenteric Arteries. Charles J. Aldrich.
81 *The Surgical Treatment of Some of the Remote Results of Inflammation of the Gall-Bladder and Bile-Ducts. Harry D. Niles.
82 An Instrument for Facilitating Intestinal Anastomosis. Oscar H. Allis.
83 *Misapplied Mechanical Support to Weak Ankles of Children. H. Augustus Wilson.
84 *Elbow Fractures in Children. (Concluded.) Frederic J. Cotton.

Occidental Medical Times (San Francisco), March.

85 A Case of Perforation of Stomach Resulting from Gastric Ulcer; Laparotomy; Recovery. R. T. Stratton.
86 *Chronic Urethritis and Its Treatment by Extract of Suprarenal Capsule. George L. Eaton.
87 Recollections of the European Clinics. James T. Watkins.
88 Cataphoric Medication. D. J. Prather.

Medical and Surgical Monitor (Indianapolis), March 15.

89 Report of Two Cases—Removal of a Sole Leather Bougie from the Male Urethra and a Mulberry Calculus from the Bladder. John A. Sutcliffe.
90 Dysmenorrhea. Madge P. Hawkins.
91 Cause and Prevention of Typhoid Fever. G. D. Lind.
92 Some Observations on Internal Strabismus. J. L. Masters.

Indiana Medical Journal (Indianapolis), March.

93 *Immunity Following, and Its Influence in Curing Gonorrhea. J. T. McShane.
94 Why Is It? (Unfriendliness Among Doctors.) J. B. Fattic.
95 *Veratrum in Pneumonitis. Carter H. Smith.
96 Hypertrophy of Prostate. T. J. O'Brien.
97 What Constitutes "Septic Poisoning" in Accident Policies? G. W. H. Kemper.

Canadian Practitioner and Review (Toronto), March.

98 A Case of Intussusception in a Child: Operation: Recovery. A. Primrose.
99 A Case of Perforation of the Bowel in Typhoid: Operation: Recovery. Followed by Subphrenic Abscess: Operation: Recovery. Herbert A. Bruce.
100 Gastro-enterostomy in Pyloric Obstruction—A Case. Alexander McPhedran.
101 Report of a Case in Practice. (Cerebral Hemorrhage.) Charles F. Neu.

American Medical Compend (Toledo, Ohio), March.

102 *The Nausea and Vomiting of Pregnancy. Is Instrumental Abortion Justifiable for Its Relief? J. A. Wright.
103 Neurasthenia Gastrica. E. J. Greenfield.
104 The Treatment of Influenza and Coughs. David E. Bowman.
105 A Hallucination. J. T. Woods.

Medical Herald (St. Joseph, Mo.), March.

106 The Various Phases of Ascites and Their Treatment. A. R. Leonard.
107 Examination of the Eye for General Diagnostic Purposes. F. E. Sampson.
108 Sugar in the Urine. J. Malseed Bell.
109 Antitussin in Whooping Cough—Clinical Report. J. N. Bartholomew.

Therapeutic Gazette (Detroit, Mich.), March 15.

110 The Treatment of Cutaneous Cancer by the X-Rays. G. E. Pfahler.
111 *The Instrumental Relief of Acute Retention from Prostatic Enlargement. Wm. T. Belfield.
112 Cholagogues. A. L. Benedict.
113 A Case of Imperforate Rectum—Death from Chloroform After Three Operations. John W. Luther.
114 Reports of Various Types of Insomnia, with Hints on the Treatment. C. H. Brockway.
115 Incomplete Retention of Urine in Stricture of Male Urethra and Its Bearing on Treatment. E. H. Siter.

Therapeutic Monthly (Philadelphia), February.

116 Chronic Muscular Diseases of the Heart. Theodor Schott.
117 An Address on Medical Education. J. R. Jones.
118 Auto-intoxication and Its Treatment. Charles H. Shepard.
119 Organic Hair and Fur Dyes. V. Coblentz.
120 Note on the Use of Cinchonin Sulphate in Coryza. James Ely Talley.

American Journal of Surgery and Gynecology (St. Louis), March.

121 *Modification of Halsted's Operation for Cancer of the Breast. J. F. Binnie.
122 Primary Carcinoma of the Body of the Uterus. J. M. Baldy.

123 *Skin Grafting. Raymond C. Turck.
124 Two Tubal Pregnancies in One Patient, with Other Ectopic Cases. W. M. Harsha.
125 Growths in the Female Breast. H. C. Crowell.
126 Stone in Kidney. A. H. Cordier.
127 Spinal Anesthesia and Chloretone. D. MacDonald.
128 Abdominal Section for Rectal Prolapse of Many Years' Standing. F. W. Parham.
129 Six Cesarean Sections, with Death of One Woman and One Child (One Death Before Delivery). Edward P. Davis.

Journal of Medicine and Science (Portland, Me.), March.

130 The Pathology and Etiology of Cancer. W. B. Small.
131 Some Modern Methods of Diagnosis of Cancer, with Particular Reference to Cancer of the Stomach. A. K. P. Meserve.
132 The Treatment of Cancer. C. E. Williams.

St. Louis Courier of Medicine, March.

133 Studies About Agglutinins. Carl Fisch.
134 Syphilis and Marriage. W. A. Hardaway.
135 The Neurologic Aspect of Syphilis. M. W. Hoge.
136 Early Diagnostic Signs and Symptoms in Hereditary Syphilis in Infants. W. L. Johnson.
137 A Gunshot Wound of the Abdomen Inflicting 19 Perforations of the Intestine and 4 Lacerations of the Mesentery, with Recovery. Robert F. Amyx.
138 Laryngeal Crisis in Locomotor Ataxia; Report of a Case. Charles J. Orr.
139 Senile Gangrene of the Right Foot. Louis J. Oatman.

Chicago Clinic, March.

140 *Laparotomy Dressings. E. C. Dudley.
141 *The Significance and Treatment of High Temperature in the Toxemias of Young Children. Marcus P. Hatfield.

Charlotte Medical Journal, March.

142 Perforating Abdominal Wounds; Report of Cases with Remarks. James M. Parrott.
143 Puerperal Fever. W. Gill Wylie.
144 Report of Five Cases of Asthma Treated with Silver Nitrate Injections. H. T. Bass.
145 Cystitis. H. M. Wilder.
146 Puerperal Convulsions as Seen by a Country Practitioner, with Report of Cases. W. T. Griggs.
147 Urinary Analysis, Diagnosis and Prognosis by the Microscope. W. H. Prioleau.

Kansas City Medical Index-Lancet, March.

148 Some Reflections on the Senile Changes of the Uro-Genital Tract. Jacob Block.
149 Eye Hospitals of France, Germany and England. Geo. W. Mason.
150 *Preputial Adhesions in the Female. E. B. La Fevre.
151 Food Preservatives, Their Use, Misuse and Toxicology.
152 Reminiscences of a Recent Trip Abroad, Including Visits to the London, Paris, Berlin, etc., Hospitals, Clinics, Medical Museums and Libraries, as Well as to the British Medical Association. John Punton.

Southern California Practitioner (Los Angeles), March.

153 Ethics of Nursing. Walter Lindley.

Texas Medical Journal (Austin), March.

154 Common Nasal Conditions as the Cause of Neuralgias of the Terminal Branches of the Fifth Nerve. Joseph Mullen.
155 The Ear and Kidney in Mild Scarlet Fever. John S. Lankford.
156 Gonorrhea in the Female. E. B. Parsons.
157 Nevi; Report of a Case and Treatment by Electrolysis. R. M. Dunn.
158 Leucorrhea and Its Treatment. R. Y. Lacy.

Texas Medical News (Austin), March.

159 The Gymnastic Training of College Men—Methods Employed in the University of Texas Gymnasium. F. Homer Curtis.
160 Tuberculosis. C. E. Lane.
161 *A Report of Seven Perineal Operations for Vesical Calculi. Joe S. Wooten.
162 Traumatic Tetanus—Report of a Case. A. L. Anderson.

Alabama Medical Journal (Birmingham), March.

163 *Epiplopexy in Cirrhosis of the Liver with Ascites. Gaston Torrance.
164 Acute Dysentery. Allen E. Cox.
165 Influenza. A. W. Sims.

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1. **Surgery and Obstetrics.**—Cragin calls attention to the importance of surgical training for obstetricians, especially in the technique of asepsis, which is of importance in obstetric work and which a surgical training can best give. The obstetrician needs special training in preparation for the meeting of hemorrhage and treatment of lacerations, obstruction deliveries, eclampsia and infections.

3. **Gangrenous Appendicitis Without Symptoms.**—The case reported by Evans was that of a child 9 years old. In the five days' sickness there was a steady advance in the pulse and toxemia. The temperature remained practically normal until the fourth day. At no time were there any cardinal symptoms of appendicitis or peritonitis. The autopsy showed that the appendix was straight, of large lumen, unobstructed by any foreign body, without adhesions or malformation. There was a bacterial infection of the peritoneum without perforation of the walls of the intestine or appendix and gangrene in that part of the lumen touching the appendix. The patient died before the peritoneal symptoms had developed. This case shows that an infection can exist in the appendix which will end fatally, not only before peritoneal symptoms exist, but before giving any indications of its source. If, in the presence of constitutional symptoms of toxemia of unknown origin, there exists the slightest suspicion of abdominal involvement, Evans suggests an exploratory incision for the purpose of diagnosis and further interference if necessary.

4. **Strabismus.**—Derby insists on the importance of long continued daily exercise and the training of an amblyopic eye. A closely fitting screen over the well eye is necessary, and for half an hour at a time daily and sometimes twice a day the deviating eye is to be exercised by writing and reading. He thinks that this is of great importance and we ought to see that the advantage of good binocular vision is secured.

5. **Internal Hemorrhoids.**—Bullard discusses four methods of treatment of hemorrhoids, the injection method, the Whitehead operation, the ligature and the cautery. The first two he thinks should be abandoned. The only value the injection method has is its applicability in cases of dangerously ill patients, to whom an anesthetic can not be administered. But the risk is so great that it is better for the time to adopt palliative measures. The Whitehead method has no advantages. The ligature and clamp and cautery operations are the proper procedures to employ, the latter possessing the advantages of a more speedy and painless cure and of being less liable to complications.

7. **Obesity.**—Studying the polysarcia of adolescence, Stern finds in some cases it diminishes toward the close of the second or beginning of the third decade of life, while in others it continues to exist after maturity and he thinks that this seems to be of some etiologic importance. Where it persists after the completion of growth, the underlying causes are undoubtedly the same as those existing in the adult, but where it disappears in maturity it must be something else. The cases abiding after individual development he classifies as metabolic, and those which subside with the approach of adult life as transitory. Both forms occur in both sexes, but he has found the metabolic factor more frequent among boys, while the specific form certainly predominates among girls. The metabolic obesity of adolescence is virtually nothing but a juvenile modification of that which he has described as metabolic obesity in the adult, understanding by that a condition in which obesity concurs with a normal or slightly subnormal degree of body-density. It is the most common of all the types and is always due to the excessive ingestion of nutriment or to insufficient oxidation in the organism or to both together. He gives the proportion of calories required normally in conditions of rest and the excess in these cases which tends to produce this abnormal growth. In some exceptional instances metabolic obesity during infancy and adolescence may be due to infantile predisposition, but in the majority of cases it is instead due to the habit of living adopted by parents and children, that is, either the same degree of superalimentation or the lack of body-activity or the combination of the two. In adolescence the metabolic obesity is not indicative of any important specific organic changes. The transitory obesity of adolescence occurs only in youth and Stern thinks there is little doubt that it is caused by certain metamorphotic anomalies which are incidental to pubescence and disappear before or at the completion of systemic development. Some anomalies are also apt to occur at the climacteric age in women and after orchidectomy and oöphorectomy in consequence of the pronounced alteration in the organism. The greater frequency of this form among girls is explained by the fact that the changes occurring at puberty are more decisive in the female than in the male. Superalimentation is not a causative factor of specific obesity and this must be due to diminished intra-organic oxidation and he attributes it to the perverted function of the thyroids, parathyroids or both. The reasons for this are first, the disappearance of the thymus gland and the marked development

of the thyroids at puberty. The more frequent occurrence of thyroid affections in girls than in boys and our physiologic and clinical experience as regards increase in protoplasm oxidation after administration of thyroid gland or its preparations. He notices certain peculiarities of the type in the specific form. The disposition of fat is more frequently on the breast and extremities, while in the metabolic variety it occurs in and upon the abdomen, region of the hips, etc. In the specific form of the affection the hair of the head is full and attains great length, while it is much less abundant and apparently short in the metabolic obesity. Neither form of juvenile obesity demands treatment when the weight is not excessive, so as to interfere with the function of certain organs, or grave concomitant disorders exist. Uncomplicated cases of less than 30 per cent. overweight should not be subjected to any continuous treatment. If, however, metabolic obesity has already appeared at an early age in other members of the family, proper dietetic treatment may be of value, but it will be of no avail in checking transitory obesity which is the result of developmental anomalies. In all cases our therapeutic efforts should be directed rather to complications and concomitant disorders than to the obese condition itself. But if the condition is extreme and giving cause for alarm the thyroid preparations may be employed. A safe form of administering thyroid substance, a tablet which he has made use of for a number of years, is as follows:

℞.	Arsenous acid.....gr. 1/60	|001
	Adonidin .....gr. 1/12	|005
	Thyroid gland, dry powder .....gr. 2	|12

M. Ft. C. T. No. i.

Physical treatment, in any of its branches, may be of benefit in individual cases of transitory obesity.

9. **Hydrocele.**—Coley and Satterwhite report a number of cases treated by the injection of pure carbolic acid by the Levis method or a modification of it. They are convinced that the carbolic injection is by far the best method. It is easily performed and almost uniformly successful, the only disadvantage being the doubt as to its always being free from risk. While this may not be great, a few serious results have occurred, sufficient to deter many patients from having it tried. Although this is valuable and effective in the great majority of cases, there are a few in which the open treatment of resection must be employed and here the method of von Bergmann of resection of the superficial tunica vaginalis seems the best and most certain and should never require more than eight or ten minutes in its performance.

11. **Hippus.**—Newton reports a case and notices the literature. He has found but one case closely corresponding to his own and that was one by Oestreicher mentioned in Kniess' work of "The Eye in General Diseases." The value of the symptom, he concludes, is but poorly determined. New researches and new study are required to determine it.

12.—See abstract in THE JOURNAL of March 1, p. 604.

13. **Sand Filtration.**—The value of sand filtration is pointed out by Anders, who illustrates it by experience of various places, including Hamburg. While its primary cost is greater, and while it requires more space it has an undoubted superiority to mechanical filtration, which is more expensive to operate and demands the utmost care in the artificial chemical processes which constitute the system.

14. **Bacillus Coli.**—Moore and Wright have investigated the bacillus coli as to its occurrence in other species than man. They have examined 44 animals, including horses, cattle, sheep, pigs, dogs and chickens. The action of the colon bacilli on the sugars and milk shows that these fall naturally into two groups, viz., those that ferment the three sugars with the formation of gas and those that ferment dextrose and lactose only, corresponding with the two varieties described by Smith. The quantity of gas produced and the relative quantities of H and CO_2 varied somewhat in the different cultures, but not sufficiently to justify the naming of special varieties or groups. In frogs the results were negative so far as the colon bacilli were concerned, but in rabbits it seemed to be present in about 1 in 4. In all the cases the cultures fermented the three sugars and produced gas. The variation in the pathogenicity of the cultures from the different species of animals is very marked. Guinea-pigs inoculated with cultures from dogs respond quickly, but apparently not with those from other animals. Additional results will be necessary before conclusions can be deduced.

15.—See abstract in THE JOURNAL of February 8, p. 413.

17. **Movable Kidney.**—Sometimes the pain complained of in movable kidney continues after operation and four cases are reported by Mallett, who accounts for it by assuming that in most instances the kidney has been fixed in a malposition and that it is attached in a position externally rotated on its vertical axis, interfering with the function of the ureter and vessels. As far as he knows, this point has never been emphasized and he calls the attention of surgeons to exercising care in the performance of nephrorrhaphy, and to see that the circulation of the ureters and vessels is not interfered with.

18. **Blood Examinations.**—Willson's article is a reply to the recent condemnation of blood tests by Deaver and Baldy, who have minimized the importance of blood examinations in surgery.

19. **Paresis.**—Pickett notes the fact that paresis without delusion is a very common type; the old type of delusion of grandeur is much less frequent than seems to be popularly believed. He mentions among the diseases liable to be confused with this disorder, so-called organic dementias, chiefly those due to hemorrhage, thrombosis, etc., dementia precox, epilepsy and alcoholic insanity. His statistics cover cases up to 65 years of age, which fact should be noted. The crucial tests of true paresis are, first and most important, the state of the pupils. He tabulates the types of the pupil changes observed. The consensual reflex, upon which Pickett lays much stress, was seen in a comparatively small percentage, but the Argyll-Robertson type, that is, marked impairment of light reflexes, occurs in over 50 per cent. The knee-jerk, he says, when abnormal, accompanying any psychosis of neurosis in middle life, suggests paresis. It was absent in 31 per cent. of the cases, diminished in 10 per cent., and only normal in 10 per cent. Paralytic attacks and convulsions are also noticed as well as hypochondriac delusions and remissions. He lays much stress on hereditary degeneracy, giving family histories in 89 cases, in 75 per cent. of which vicious constitutional conditions existed in the heredity. He includes under this head: consumption, cancer, heart disease, asthma, nephritis, etc. The purely neurotic histories would not come to so high a percentage. He says in conclusion that it is profitable to suggest two lessons from our study of paresis. First, for our patient: That immunity from paresis rests not on freedom from the great infection alone, but, as the older writers believed, on abstinence from all excesses. Second, for ourselves: That diagnosis, the principal thing required of us in the present state of our knowledge of paresis, depends so much upon a practical acquaintance with the "paretic manner," that no amount of fine training in the best schools can take its place. Impressed with this fact by daily contact during several years, with some scores of the best graduates of our Philadelphia medical colleges, he would urge the importance of teaching in the asylums. An hour in the wards is of more value than many lectures.

21. **Nitrous Oxid and Ether Anesthesia.**—Le Breton's experiences with this form of anesthesia are given in a general way in this article. He quotes other authorities also in favor of this method. It is the writer's custom to remove the inhaler about once every two minutes to allow the patient one or two inspirations of air during the ether anesthesia and thus avoid asphyxiation. Unless too much ether is required in this method there are few unpleasant after-effects. The changes of technique which he has adopted with the use of the Goldan apparatus since the appearance of his first article are as follows: "The rubber mouth-piece may be kept sterile by placing it in a weak formalin solution after each operation. The quantity of ether inhaled may be determined by using as a holder a graduated nursing bottle with a cork perforated by two metal tubes, such as ordinarily is used to drop chloroform upon a chloroform inhaler. Dr. Mann originated a little scheme for introducing the ether which the writer has found of great

service. By boring a small hole in the metal cylinder which holds the gauze, and inserting into it the end of one of the tubes in the cork of the nursing bottle, the ether is allowed to trickle upon the gauze quietly and rapidly. About twenty seconds after starting the gas the first dose of ether may be run in, and at the end of the second minute, by which time the gas has made the patient unconscious, the gauze in the cylinder has been well saturated with ether. At the end of the fourth or fifth minute a return to semiconsciousness is sometimes noted, but continued small doses of ether quickly control the situation."

22. **Supra-Orbital Reflex.**—In September, 1901, McCarthy published his first description of what he considered a pure sensory motor reflex, to which he gave the name of supra-orbital reflex. Since that publication the symptoms have been discussed by Hudovernig, who considers it an overflow of contraction from the occipito-frontalis to the orbicularis, and by von Bechterew, who considers it only partially a true reflex and to a certain extent the transmission of mechanical impulses along the different fascia and muscular fibers. In order to exclude the mechanical errors he tried irritation of the skin areas by means of heat, cold and pain, and accurately outlined the supra-orbital distribution so that he is sure that the name supra-orbital reflex is justified and his original explanation a correct one. A careful study of the reflexes in the upper portion of the face, which is richly supplied with sensory nerve filaments of the fifth nerve, all of which are accessible to mechanical or sensory irritation, shows that there are several independent and distinct reflexes there occurring as follows: "1. A pure sensory-motor reflex, in the nature of a skin-muscle reflex, elicited from the supra-orbital distribution exclusively. 2. A periosteal reflex may be obtained when there is an excited condition of the reflexes, by irritation (percussion) over the malar arch or the periosteum of the nose (v. Bechterew, Overend). 3. The corneal and conjunctival reflexes, by irritation of these structures. 4. The corneo-mandibular reflex of v. Solder, a lateral movement of the lower jaw produced by irritation of the cornea." (*Neurologisches Centralblatt*, 1902.)

25. **Serumtherapy.**—The progress of investigation in the direction of serumtherapy of typhoid is reviewed by Ewing, who says that the problem of the serumtherapy of the disease is the preparation of a serum which is principally bactericidal and not antitoxic as in typhoid. It remains for investigators who have the experience and means to combine the results that have been made and to determine what success can be secured in the treatment of typhoid fever by the injection of serum and visceral extracts from animals which have been treated with a view of producing culture immunizing bodies. He thinks the outlook is fairly hopeful, if not in the production of a curative serum, at least as regards progress in our knowledge of artificial immunization both in this disease and other obstinate affections.

27. **Typhoid Bacilli in the Feces.**—Higley has studied the occurrence of typhoid bacilli in the feces and gives a résumé of the cases with the following conclusions: 1. During the second week of typhoid fever, when technical aids are of the greatest value to the practitioner, isolation of typhoid bacilli from the feces gives slightly better results than does the Widal test. These two methods used in combination, when the tests are carefully and persistently made, render material aid in the diagnosis of this disease previous to the appearance of distinctive clinical symptoms. 2. By the use of the Hiss isolation method, especially with the substitution of the new plating medium, the detection and isolation of typhoid bacilli are, to one familiar with bacteriologic methods, simple, reliable and practical.

28. **Widal Reaction.**—Libman made 3514 tests in 860 cases. He finds the positive Widal reaction always means the presence or previous existence of typhoid. A partial reaction should be absolutely ignored. The negative reaction does not exclude the existence of typhoid fever. It occurs under any of the following conditions: 1, the reaction has already disappeared; 2, the reaction may only appear later; 3, the culture may be at fault; 4, the case is clinically one of typhoid and there may never be a positive reaction; 5, the disease is not typhoid. A negative reaction may occur if the patient is suffering from paracolon infection, and still, for the practitioner, the case is clinically identical with typhoid. Scientifically, the Widal reaction is of the greatest value in establishing the presence of infection by the typhoid organism where the clinical typhoid fever does not exist. It is practically also of use, but not so valuable as we wish in many cases. In many cases it alone can establish the diagnosis. This is practically true of atypical cases in which pneumonia or meningeal symptoms usher in the disease, which are more common in children than in adults. He thinks that it is advisable to test the blood early in any fever case, the diagnosis of which is not known. If the result is negative, as is apt to be the case, the later positive reaction stamps the case as typhoid and it can not be attributed to an earlier attack of the disease. If a case present the classical symptoms of typhoid fever, it is not necessary to examine the blood, except possibly for two reasons: 1. If later in the course of the disease some perplexing symptom-complex arise, one can be sure that the original diagnosis was correct. 2. If some unusual observation is made, the case can be utilized for the purpose of advancing our knowledge of typhoid fever. If the case be a doubtful one, the reaction should be made every two days until it becomes positive, or until in other ways a positive diagnosis of the condition has been established by the practitioner.

30. **Adrenal Substance in Typhoid Hemorrhage.**—Coleman maintains that we are justified in advocating the free administration of adrenal substance in cases where the ordinary reaction hemostatics are not sufficient. It can do no harm and may be of the greatest value.

32. **Suture of the Arteries.**—The various methods that have been devised for suturing the arteries are detailed by Hubbard, who gives a résumé of twenty operations from the literature. He tried to show by experimentation that transplantation or anastomosis of arteries was possible and three experiments on dogs are reported, which seem to indicate this possibility, though the results are imperfect. If this were possible, he has and idea that in a certain number of conditions, such as some abdominal aneurysms for example, this procedure will be of some value. All the dogs survived the operation and were killed within two weeks and the conditions observed. In the first case an incision into the artery was sewed up. The recovery was good. In the second case there was a resection of the left carotid and a lateral anastomosis of the ends. At death there was found to be soft blood clot occluding the artery at the point of union, though air passed freely. On the same dog a similar operation was made on apparently the other carotid, only cutting out a portion of the wall to make the circulation freer, though it is stated as the same one. Anastomosis seemed to be free, though there was a clot in a hole where a stitch had given way, causing secondary hemorrhage at the time of death.

33. **Catgut Ligatures.**—From his experimentation Cabot concludes: 1, that in rabbits chromicized catgut of No. 1 size is retained longer than is desirable in a suture material for surgical use; 2, that plain catgut of No. 1 size is retained a sufficient length of time; that is to say, a minimum of three weeks; 3, that catgut prepared by dry heat is more rapidly absorbed than that prepared by moist methods; 4, that the time required for absorption increases very rapidly with the increase of size, as No. 2 gut took from two to three times as long to absorb as No. 1. The application of these results to operative surgery is taken up, and he emphasizes the following points which seem to him important. 1. In order to get the best results from catgut, care must be taken to select the size and preparation best suited for each occasion. 2. The use of too large sizes is one cause of unsatisfactory results. 3. Care in tying and cutting catgut ligatures is essential to safety.

34. **Catheter Sterilization.**—From the results of his tests, Cotton claims that all the gum-elastic catheters and bougies ordinarily sold may be boiled repeatedly and for long periods in saturated (or something less than saturated) solutions of ammonic sulphate or sodic chlorid without essential damage.

New instruments show no damage whatever, used instruments only a deterioration that is of no great consequence. As to a choice between the two, he feels a little surer of the ammonic sulphate, perhaps, but would choose it not so much because of this as because it is easier to handle and spatters less when it boils down than does the common salt. As to the weaker solutions of common salt, they seem to be all right, but the tests made are too few as yet to be conclusive. At all events, the use of these more dilute solutions has no obvious advantage and has the disadvantage of lowering the boiling point. The methods have not been tested bacteriologically because it seemed superfluous.

35. **Uterine Retrodisplacements.**—Coggeshall's article is a demonstration of Goldspohn and Gilliam's operations, which he thinks are much superior to any method of shortening the round ligaments by doubling the proximal portion upon itself within the abdominal cavity.

36. **School Hygiene.**—Wright notices the various conditions bearing on the health of school children. First, the site of the school house, which should be a healthy one, and the number of pupils occupying a room, which should not be over 40 or 50, allowing about 20 sq. ft. of space for each. He favors natural ventilation rather than an artificial method. A northern light is preferable to any other and should be introduced from the left side of the pupil. The desks should be properly adjusted to the pupils, for this has much to do with the production of spinal curvature and sight defects. He thinks one of the most important factors in the causation of disturbances of the nervous and digestive system in the school children are due to the long school hours, and many failures of health and scholarship are due to them. A session of three hours, with a short intermission, is as long as any growing person should work. High school hours are generally bad, requiring an early breakfast and late dinner. The various diseases that should be watched for are enumerated, including tonsillitis and all digestive disturbances. Vaccination should be compulsory. A person who has been sick with scarlet fever should be kept from school at least until the process of desquamation has been completed, and even then he should not return until a thorough disinfection has been made of the person and premises. The danger of diphtheria is not over when the membrane disappears. Outbreaks of disease often have their origin in persons who have been allowed to return to school before they were entirely free from the infection. Measles and whooping cough are often slighted by teachers and parents, but they are really serious disorders. Pupils should have nothing in common, such as pencils, drinking cups or books. Medical inspection, if properly performed, seems to offer the best chances for lessening sickness. It should include: 1, sanitation of the buildings, inspection of the heating and ventilating apparatus, general cleanliness, water supply, closets, and the possible supervision of books, pencils, etc.; 2, examination of the pupils, which should be daily, for the prevention of contagious diseases and at stated intervals for the detection of parasitic diseases and vermin, and at least every term to ascertain if all pupils have been successfully vaccinated; examination several times a year of the eyes and ears in order to correct errors of refraction and defects in hearing. Many children naturally bright are considered dull simply because no one has discovered these defects. What might be called outside inspection is looking into the causes of absence of children and the nature of their illness. The custom of sending pupils from the school for this purpose is wrong and sometimes contagion is conveyed in that way.

37. **Visual Center Lesions.**—The case reported by Stricker occurred in a laboring man 60 years of age, who suffered severely from dizziness, vertigo and reeling gait followed by coma and later had very serious defects of vision. The vision fields were carefully examined and sketched. The consensual reaction of his pupils was perfect. There was no paralysis of the sphincter of the pupil, or of accommodation or other ocular muscles. He showed no form of other sensory or motor paralysis, nor did he disclose any form of psychic involvement. By exclusion, the author comes to believe that there is a localized cortical lesion restricted to the visual center in the region of the calcarine fissure. The color sense was perfect in the retained portions of the field.

40.—This article has appeared elsewhere. See THE JOURNAL, XXXVII, ¶20, p. 1702.

45. **Chorio-Epithelioma Malignum.**—This condition, known as "deciduoma malignum," "sarcoma deciduo-cellulare," "sarcoma chorio-cellulare," etc., is described and its theories elaborately discussed by Pierce, who suggests the name given by Marchand as the most correct one. Its pathology is not altogether clear, but he considers it probably connected with some diseased condition of the endometrium. Why it usually follows abortion or normal labor is more difficult of explanation than why it should follow a mole, in which there is perhaps a higher degree and greater persistency of chorio-epithelial proliferation. He describes the symptoms and the treatment, which is essentially surgical, consisting practically in total extirpation of the uterus as soon as the diagnosis is made.

46. **Retroversion and Retroflexion.**—Davis concludes that our present knowledge favors Schroeder's conclusion that uterine retroflexion or retroversion uncomplicated by tubal or ovarian disease does not affect the health nor does it demand treatment. In the cases reported, the patients were greatly benefited by tonics and rest. The corset should be discarded and the clothing adjusted in each case so that there is no interference with the mobility of the viscera. When dragging or heaviness is felt in the pelvis the assumption of the knee-chest posture will usually bring relief. If the patient has been accustomed to wear a support and believes it necessary, that one which exerts less pressure will be found most successful.

48. **Perineal Laceration.**—The principles of operation for laceration of the perineum consist, according to Kreutzmann, in the adjustment of the layers so that each tissue is united to its corresponding part. He divides the operation into four different acts, which he describes thus: 1, dividing the vagina, cutting down into the septum between vagina and bladder or between vagina and rectum; 2, the detachment of the prolapsed diverticulum of the bladder from the vagina, if necessary from the uterus, or separation of the rectum from the vagina; 3, the careful apposition of the fascial tissue and of the muscles that belong to each other, by direct, exact, buried suture; 4, to finish the operation, the vaginal flaps may be resected and united, or they may be united without any resection, as the individual operator sees fit in every single case. No matter what the operation, the principle of procedure is always the same and he applies these principles to other operations such as vaginal fixation.

49. **Perineal Laceration.**—Bovée describes his method, the principal points of which are: "1, the use of buried and absorbable material for the principal sutures; 2, placing the deep ones in such manner that no skin suturing is required; 3, placing them so that the tension of the levator ani and its auxiliaries is restored; 4, avoidance, to a high degree, of infection from the rectum; 5, the facility of the operation; 6, emptying the bowels every day after operation."

52. **The Menopause.**—Cook's article maintains that the climacteric is a normal phase in woman's life and there should be no necessary symptoms whatever. The manifestations experienced are pathologic, not normal.

55. **Gonococcal Peritonitis.**—Frank and Koehler report several cases and say in conclusion that "to-day we are in possession of absolute facts pointing to the extensive activity of the gonococcus in regions formerly considered immune to its infection. The lesions produced may be summed up briefly as follows: endometritis, metritis, salpingitis, oöphoritis, peritonitis (both circumscribed and diffuse), proctitis, seminal vesiculitis, cystitis, carditis, pleuritis, parotitis, periostitis, osteomyelitis, bursitis, arthritis, tendo-vaginitis, muscular and subcutaneous abscesses, myelitis and meningitis. Metchnikoff's investigation of the nervous tissue, according to Nissl's method, has disclosed the fact that the toxin of the gonococcus has an undoubted deleterious effect upon the cord. Clinically, this is shown by the occurrence of neuralgias (ischias). Also probably due to the circulating toxin alone are the cutaneous lesions

at times observed. They are multiform in kind, erythematous, papular, urticarial, hemorrhagic, bullous and hyperkeratoid. Wassermann's investigations show that the toxin of the gonococcus has marked phlogistic powers and is bound during life to the bodies of the cocci. After their death its liberation may produce an active suppuration, the bacteria themselves disappearing by disintegration. This may explain the inability at times to find the organisms, though we may be firm in the belief that the condition or death may have been caused by their action."

56.—See abstract in THE JOURNAL, xxxvii, p. 1411.

62. **Reflexes from a Sympathetic Ganglion.**—Budgett and Snodgrass report experiments on cats to test whether a sympathetic ganglion can act as a reflex center. They severed the vagus above the trunk ganglion and united its peripheral end to the central end of the cervical sympathetic severed just below the superior cervical ganglion. The experimenters say: "As a result of these experiments, it seems highly probable that sympathetic neurons may respond to nerve-impulses transmitted to them by afferent nerve-fibers, but the possibility remains that the effects produced may have been due to an axon-reflex caused by the stimulation of efferent pneumogastric fibers."

63. **Syphilis.**—Hardaway deprecates the routine practice of continuous specific medication, especially in late syphilis. The need of building up instead of depressing the general vitality is emphasized. Tonics are indicated with or before the iodids and mercury. He says: "Perhaps twenty-eight years ago I became acquainted with the following formula for giving iodid of potassium—a method, I think, originated by the elder Bulkley, and which I have modified a trifle:

℞.	Potassii iodidi	℥ss	15 |
	Ferri et ammonii citratis	3i	3 | 75
	Tr. nucis vomicæ	3ii	7 | 50
	Aquæ	℥iss	45 |
	Tincturæ cinchonæ comp. q. s. ad	℥iv	120 |

M. Sig.: Teaspoonful in one-fourth glass of water after meals.

"The elixir of calisaya may be used instead of cinchona This is a nasty mixture at best and is both chemically and pharmaceutically objectionable, but its virtues far outstrip its faults. With the majority of people the beneficial effects of this ideal tonic mixture are rapidly apparent, the appetite increases, the anemia disappears and a general feeling of well-being is engendered. Before breakfast and at bedtime a pill of opium and protoiodid of mercury is ordered. The dose of the protoiodid is usually one-fourth to one-half a grain and of opium about one-fourth grain. I regard opium as a drug of the very highest value in the treatment of ulcerations of all sorts, and I am convinced that in syphilis we get along better and quicker with it than without it. If for any reason it is desired to increase the dose of iodid, which, however, is rarely required, the patient may be given a saturated solution, of which he may add the necessary number of drops to the tonic mixture. Many years of constant employment of this plan of treatment has taught me its great value in suitable cases, and especially in the class of luetic lesions mentioned above; although, of course, I am fully aware that no one method can be infallible and that the physician must have many strings to his bow if he hopes to treat successfully so protean a malady as syphilis."

64. **Malarial Dermatoses.**—Eighteen cases of skin affections, urticarial, herpetic, etc., are reported and discussed by Engman. He remarks on the neglect these have received and offers the following as his conclusions: "1. It is highly probable that certain affections of the skin, as pruritus, urticaria, angioneurotic edema, erythema multiforme, pompholyx, zoster, eczematoid eruptions and gangrene may be due to malarial poisoning. 2. In such cases there is generally a periodicity in the intensity of the eruption symptoms. 3. There may be marked or slight constitutional disturbances, or the eruption may occur without any other symptom of paludism. 4. Nephritis may complicate the picture in severe cases and seem to be the apparent cause of the dermal manifestations, whereas the malarial infection is the sole etiologic factor. 5. When an eruption is associated with malarial infection it quickly recovers under the specific treatment."

76.—See abstract in THE JOURNAL, xxxvii, p. 933.

77. **Epiplopexy.**—Torrance reports a case and analyzes cases reported in the literature. He reviews the opinions of authors and calls attention to the fact that of the 10 cases that have been cured by this operation, in 7 the omentum was simply sutured to the abdominal wall and the surface of the spleen and liver left unirritated. He is convinced that this is the best operation. Oozing from these irritated surfaces makes an excellent culture medium for any germs that may accidentally get into the abdomen. Moreover, the operation was designed to relieve the strain on the liver cells and we should attempt to divert as much current from the liver as possible; therefore, we should not attempt to form any adhesions between the liver and abdominal wall. If he has an opportunity to do the operation again he will tap his patient on the day of the operation and make a small incision under local anesthesia, simply suturing the omentum without exploring the abdomen.

78. **Splanchnoptosis.**—A case of Glenard's disease is reported by Ingalls, who emphasizes the fact that surgery alone offers material aid for this class of sufferers, that is, to those in whom the symptoms are relieved by support, and they should have the benefit of an operation as soon as the condition is known. The work should be complete in every detail. He recapitulates the steps as follows: "1, suture of liver and kidney; 2, shortening of gastrohepatic omentum; 3, fixation of transverse colon; 4, general reconstruction of the abdominal wall."

79. **Rupture of the Intestine.**—Four cases are reported of rupture of the intestine by abdominal contusion; in all a small striking surface combined with great velocity characterized the accident. The only chance for these cases, he holds, is operation at the earliest possible moment. The danger of delay and the hopelessness of last-resort surgery are evident. It is necessary to note carefully the presence or absence of severe primary shock, and when it is present to take immediate measures to counteract it as far as possible. Large enemas of salt solution may favor fecal extravasation, but intravenous or subcutaneous infusions should be promptly and freely given. As soon as reaction is established, an incision should be made over the point of the blow whenever it is possible to locate it by the appearance of local pain or tenderness, and should be sufficiently free to permit of thorough exposure and inspection of the underlying intestinal coils. The injury is likely to be at once apparent and the injured bowel should be withdrawn from the cavity, and any possible contaminating matter that may have escaped wiped away. Mesenteric hemorrhage should be prevented and the intestinal wound closed and the intestinal tract examined, and finally the peritoneal cavity should be washed out with salt solution and close the incision. Resection may be required, but he would avoid it if possible. He does not think that simple peritoneal drainage is necessary or useful after the rupture has been tightly and carefully closed; but when one can not be satisfied as to this, it should be walled off from the rest of the cavity and left accessible to future inspection. In the majority of cases, however, this will hardly be necessary.

81. **Remote Results of Gall-Bladder Inflammation.**—Niles reports several cases of late symptoms produced by gall-bladder inflammation and says: "These and other experiences and observations in the same line lead me to conclude: 1. In this region inflammatory lesions often occur and produce permanent organic changes without giving rise to those characteristic signs and symptoms described in our text-books. 2. The anatomic relations and physiologic functions of the surrounding organs and tissues are such that peritoneal adhesions here may produce grave secondary lesions and symptoms that in the past we all have failed to recognize, or at least to correctly interpret. 3. In these obscure cases we are often compelled to resort to an exploratory incision to determine the exact condition and to rely exclusively upon surgical measures to remove or correct

the pathology. 4. In the light of our present knowledge, no experienced surgeon is justified in hastily declaring these cases to be hopeless or in permitting them to be deluded by a foolish faith in drugs or other unreasonable measures; it is his duty to offer them such chances as modern surgery affords so far as his ability and the conditions permit. Guided by my recent studies and personal experience, I shall in the future be, if possible, more thorough and radical in separating all adhesions and in taking every precaution to prevent their reforming."

83. **Weak Ankles.**—Wilson's conclusions are as follows: "The natural human foot best performs its functions when it has been freest from restraint. The natural foot can be quickly crippled into inefficiency by high-counters, corset-shoes, arch-raisers, wedges and elastic anklets. The natural foot, when burdened by misapplied mechanics, is rendered weak, and therefore susceptible of sustaining injury, such as sprains and the formation of bunions, flat foot, wabble joints, etc. The natural foot in a constitutionally weak or rhachitic child may demand mechanical aids specially adapted to the individual requirements and peculiarities of the case. It is the duty of the medical profession to discourage the indiscriminate use of high-counters, corset-shoes, elastic anklets, arch-raisers and sole wedging, which are known to be injurious, unmechanical and productive of permanent loss of function."

84. **Elbow Fractures in Children.**—Cotton concludes his elaborate paper on this subject, which is too full to be abstracted, with a classification of the different forms of fracture, for which the reader is referred to the original.

86. **Suprarenal Extract in Urethritis.**—Eaton finds suprarenal extract of special value in chronic urethritis of the anterior urethra, characterized by glandular and follicular engorgement and by a tendency to epithelial infiltration and to form fibrous tissues. It may also be applied to posterior urethral inflammations of the same general character. In acute gonorrhea it is contraindicated. He reports cases.

93. **Gonorrhea.**—McShane holds that one attack of gonorrhea produces complete immunity to future similar attacks for a period lasting from a few months to a few years and that partial immunity modifying the attack may exist for an indefinite period; these cases of modified gonorrhea are sometimes mistaken, he holds, for reappearance of an old attack.

95. **Veratrum.**—The views of authorities on the effect of veratrum are noticed by Smith, who does not consider it an advisable remedy in pneumonia. While he has often used it, he has only been disappointed and never feels comfortable while employing it in this disease.

102. **Vomiting of Pregnancy.**—Wright considers the induction of abortion for the vomiting of pregnancy unjustifiable, as the natural termination of all cases is recovery. The resources of treatment are practically inexhaustible. If death occurs it is more likely to be due to gastric ulcer, malignant growths, tubercular peritonitis or some other disease.

111. **Prostatic Enlargement.**—Belfield summarizes his paper as follows: "1. Acute retention from prostatic enlargement is due to edema, not a rigid obstacle, in the prostate. 2. This edema can be passed sometimes by a Nelaton, always by a Mercier catheter. 3. A metallic catheter is curved to traverse the normal deep urethra and is therefore not adapted to traverse the elongated, distorted urethra of the enlarged prostate. Hence it should be used only as a last resort, and then never forcibly. It is understood that urotropin or cystogen should be administered at once in all cases of acute retention and continued until the danger of pus infection of the urinary tract has passed."

121. **Mammary Cancer.**—The modification of Halsted's operation here suggested by Binnie consists practically in doing the excision from without inward instead of from within outward. As much skin is removed with the breast as in Halsted's operation, but the ordinary incision penetrates the skin alone. The skin is reflected centrifugally from the tumor and more thoracic fat is taken away. If it is desirable to incise the supra-clavicular or cervical glands, such work would form another step in the operation. The advantages claimed are: 1. The delicate axillary dissection is done while the surgeon is fresh and he is not hampered by loose tumor mass getting in his way. 2. The breast remains *in situ* while the tedious portions of the operation are being executed, preventing body cooling, and hence obviates some shock. 3. It has the advantage also of not requiring the assistant to manipulate the breast while the surgeon works in the axilla and thus possibly avoiding some chances of driving cancerous virus from diseased lymphatics and into the circulation before all communications are cut off.

123. **Skin Grafting.**—Turck believes in the preliminary use of oxychlorin, 1 to 500 in sterilized water, as a wet dressing on alternate days with aristol for a week or more. In the cases reported it was applied alone for three days before the grafting operation and left undisturbed until brought to the operating room. After removal of the wet dressing, the grafted surface should be rinsed with salt solution, shaved with a sharp scalpel and if any tissue seems soft and irritated it should be removed down to firm granulations; all blood clots and shreds are to be carefully cleared away. The grafts are cut with a sawing motion, taking a little less than one-half the thickness of the skin. Numerous small grafts one-half to three-fourths of an inch by one inch in size do better than a few large ones. They should be placed in no solution after cutting, but transferred immediately to the field. It is well, however, after the graft is cut, to dip the end of the razor into normal salt solution, thus taking a few drops of the solution on the concave upper surface to float the graft off. The advantage of overlapping grafts is doubtful; they should just touch one another, and a little overlapping does no harm. The wounds left from taking the grafts are dusted with aristol or dermatol and a layer of gauze covered with vaselin applied. The grafted surface should be entirely covered by narrow strips of rubber dam to prevent any adhesions of the outer dressing. Over these, layers of gauze wet with normal salt solution and the whole enveloped in rubber tissue or oil silk, forming a saline moist chamber. The dressing should not be allowed to become dry, but should be kept constantly moist, and the dressings be left undisturbed for several days. When removed the field should be carefully cleansed with oxychlorin solution, taking particular pains not to disturb the grafts and a wet dressing of oxychlorin applied. It should be left for two to four days. If after removal there appears to be no great amount of secretion, the field may be dusted with aristol and the daily alternation of aristol and oxychlorin continued for a week or more. After cicatrization is well marked, an ointment of aristol and vaselin should be applied until the scar is perfectly formed.

140. **Laparotomy Dressings.**—The following method is described by Dudley as that employed for abdominal incisions in St. Luke's and Wesley Hospitals: 1. Dusting with nosophen; 2, a single layer of gauze, its outer edge fastened down with collodion; 3, a layer of cotton; 4, a second layer of gauze fastened down with collodion; 5, several larger pieces of gauze secured by perforated adhesive plaster over all. The advantages of this method of dressing are claimed to be: 1. Nosophen powder, if freely used over the wound, is preferable to most of the other so-called "dusting powders"; and, especially when used in combination with the subcutaneous suture, is almost certain to prevent stitch-hole abscesses. 2. By using the collodion only on the margin of the gauze, any slight secretion from the wound, which, if confined, might embarrass the healing process, can escape by absorption into the dressings. 3. A small amount of cotton placed between the two layers of gauze adequately serves for absorption of wound secretions and for the protection of the wound against outside influences. 4. A small amount of gauze and cotton dressing may be used in place of the enormous and cumbersome dressings which are ordinarily employed and which are not only a source of great discomfort to the patient, but are with difficulty kept in place by the conventional abdominal binder, and which, moreover, may confine so much heat to the region of the wound that it acts like a poultice and so favors suppuration. 5. The perforated plaster takes the place of the annoying and rather unmanageable abdominal binder, which a careless or incompetent nurse not un-

commonly permits to slip upward toward the axillæ, thereby leaving the wound exposed. In a long series of cases at St. Luke's and Wesley hospitals, dressed in the manner above described, only one case has shown suppuration in the wound, and in this case the incision has been made through an old suppurating sinus.

141. **High Temperature in Children.**—The following "thermic aphorisms" are laid down by Hatfield regarding high temperature in children, its significance and management: 1. Transient high temperature (below 104) is of little clinical significance. 2. Barring cerebral lesions, continued high temperature is evidence of the accumulation and attempted destruction of toxins in the organism. 3. Except in rhachitic children, this process is conservative and rarely requires other than hydropathic treatment. 4. The most prompt antipyretic for children is antipyrin in alcoholic solution given either by the mouth or rectum. 5. The safest antipyretic, though slow in its actions, is quinin by inunction or suppository. 6. An antipyretic that is analgesic as well as antithermic is acetanilid, best given in a dilute solution of arom. spirit. ammoniæ. 7. Phenacetin, as an antipyretic for children, is slow in its actions—at times, cumulative—and may be profitably substituted by lactophenon given in the same doses. 8. Pathognomonic temperature curves, on account of the nervous instability of the child, are less frequent than in adults, and this is especially true of typhoid, malaria and broncho-pneumonia.

150. **Preputial Adhesions.**—Cases are reported by La Fevre of convulsions, enuresis, mental depression and other neuroses in females, which were relieved after other methods had failed by breaking up adhesions of the clitoridian prepuce. He remarks on the neglect of this condition and, while admitting that it produces no symptoms in many cases, holds that it should always be borne in mind when a reflex neurosis, not otherwise explained, is encountered.

161. **Vesical Calculi.**—Wooten discusses his cases and gives his preferences. He thinks the suprapubic operation has its disadvantages in the lack of natural drainage and the impossibility of determining whether immediate suture is possible; the inability to regulate the extent of incision in bladder wall toward the pubis; serious post-operative complications such as suppuration, necrosis, etc. There is a danger to the peritoneum when it is anomalous and extends down over the anterior surface of the bladder beyond the usual limit. The long duration of convalescence is another trouble and hernia may occur even when the deep fixation sutures in the upper angle of the wound are employed. The disadvantages of perineal section are the dangers of sterility which Ehrmann characterizes as a bugbear and which are slight at best, and the inability to inspect the bladder and meet with other conditions than the existence of stone: The advantages are that the surgeon can thoroughly and usually ascertain by finger or forceps that the bladder is free from growths and debris and the existence of prostatic growths, the natural drainage by retention catheter and the chance of clearing up existing cystitis, the non-prevention of treatment of certain forms of prostatic growth and the chance of dealing with complications of stricture in the deep urethra, the possibility of using perineal lithotomy when stone is found to be unusually large and the statistical evidence in its favor. He finds, according to the records which he has been able to obtain from Cabot, White, Barling and others, that the percentage of deaths is much less in this operation than in the others.

163.—See ¶77 above.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below.

British Medical Journal (London), March 22.

1 A Farewell Retrospect. John K. Spender.
2 *On the Treatment of Deafness of Middle-Ear Origin. Chalmers Watson.
3 Hay's Reaction for Bile Salts. A. P. Beddard and M. S. Pembrey.
4 *The Isolation of the Typhoid Bacillus. A. Moore.
5 *A New Diagnostic Point in Typhoid Fever. Heneage Gibbes.
6 An Experiment with Ultra-Violet Light. Dawson Turner.
7 Two Cases of Rare Orbital Tumor. F. T. Paul.
8 Case of Tumor of the Pons Associated with Degeneration in the Posterior Columns of the Cord. E. E. Lastett.
9 Notes on Adrenalin Chlorid Solution in Ophthalmic Practice. George A. Ferdinands.
10 Case of Total Suppression of Urine Due to the Obstruction of Both Ureters by Renal Calculi. W. Mitchell Stevens.

The Lancet (London), March 22.

11 *The Etiology of Typhoid Fever and Its Prevention. W. H. Corfield.
12 *The Pulmonary Circulation More Particularly in Relationship to Variations in Cardiac Activity. T. G. Brodie.
13 The Education of Epileptics. William Alexander.
14 *A Short Contribution to the Study of General Infections Produced by the Staphylococcus Aureus and by the Streptococcus. Guiseppe Bellei.
15 *Electric Shocks at 500 Volts. Alexander P. Trotter.
16 A Criticism on the Visual Test as Used in the British Army. A. A. Bradburne.

Journal of Tropical Medicine (London), March 15.

17 *Duration of the Latency of Malaria After Primary Infection as Proved by Tertian or Quartan Periodicity or Demonstration of the Parasite in the Blood. John T. Moore.
18 Principles Determining the Geographical Distribution of Disease. Louis W. Sambon.

Australasian Medical Gazette (Sydney, N. S. W.), February 20.

19 Specialism in Medical Work. G. Allieck Scott.
20 Medical Ethics. P. Sydney Jones.
21 The Medical Curriculum. J. T. Wilson.
22 *On a Probable Way by Which the Young Ankylostomum Duodenale Enters the Human Subject. Thomas L. Bancroft.
23 *The Solution of the Septic Problem. D. Montgomerie Paton.
24 Three Cases of Syphilis. E. Ken Herring.
25 A Case of Cesarean Section. James T. Mitchell.
26 The Value of the Diagnostic Signs of Suppuration in the Maxillary Antrum. H. Russell Nolan.

Annales de Dermat. (Paris), February.

27 *Alopecia Areata of Dental Origin. L. Jacquet.—"La pelade d'origine dentaire."
28 Recurring Phlyctenosis of the Extremities. Carle (Lyons).—"Cas de phlycténose récidivante des extrémités."

Bulletin de l'Acad. de Med. (Paris), March 4 and 11.

29 *Chloroform in Heart Disease. General Discussion Continued.
30 The Sanitary Service and Quarantine Stations. Report of Committee.
31 *Rapid or Sudden Death of Gastric Origin. Lancereaux.—"De la mort rapide ou subite d'origine gastrique."
32 Mechanism of Movements of the Eye. Motais (Angers).—"Mécanisme des mouvements de l'œil."

Bulletin Medical (Paris), February 8 to 26.

33 *Heredity in Relation to Movable Kidney. Guillet (Caen).—"Que faut il penser de l'hérédité du rein mobile?"
34 Alger as a Health Resort. Crespin.—"Index des princ. stations françaises."
35 *Insanity in the Army. Granjux.—"L'aliénation mentale dans l'armée."

Bulletin Soc. Med. Hop. de Paris, March 6 to 20.

36 *Lactate of Mercury in Treatment of Syphilis. Gaucher.—"Le lactate de mercure. Son emploi dans le traitement de la syphilis."
37 *Prokhoroff's Method of Treating Syphilis. G. Scherb (Alger).—"De la méthode de Prokhoroff dans le traitement de la syphilis."
38 *Relations Between the Spindle-Spirillæ Symbiosis and Scarlet Fever, Diphtheria, Scorbutus and Ordinary Sore Throat. Simonin.—"Les rapports de la symbiose fuso-spirillaire avec la scarlatine, la dipht., le scorb. et les angines banales."

Echo Medical (Lille), March 16.

39 Bacteriologic Study of Ocular Secretions. E. Painblan (Lille).—"A propos de l'examen bact. de quelques sécrétions oc."
40 *Pathogenic Deductions from Study of the Freezing-Point of Hydatid Fluid. H. Surmont (Lille).—"Déductions path. de la détermination du point cryoscopique du liquide hydatique."
41 *Study of the Diazo-Reaction. Deléarde.—"Note sur la diazo-réaction."

Journal de Med. de Paris, March 16.

42 *Relations Between Cutaneous Affections and the Size of the Stomach. L. Butte.—"Rapports entre les affections cut. et les dimensions de l'estomac."

Nord Medical (Lille), March 1 to 15.

43 *Hysteric Vomiting in Children. G. Carrière (Lille).—"Sur les vomissements hystériques chez l'enfant."
44 *What We Can Learn from Homeopathy. R. Bommier (Arras).—"De l'homéopathie. Ce qu'il faut en retenir."
45 Pathology of the Lingual Glands. A. Jousset (Lille.)—"Pathologie de l'amygdale linguale."
46 *Lumbar Puncture for Cephalalgia. G. Carrière.—"La ponction lomb. contre les cephalées."

Presse Medicale (Paris), March 15 and 19.

47 Treatment of Recto-Perineal and Recto-Vaginal Fistulæ by Drawing Down the Rectal Mucosa. G. Marchant (Paris).—"Traitement des fistules r.-p. et r.-v. par l'abaissement de la muqueuse rectale."
48 Family Periodic Paralysis. C. Oddo (Marseilles).—"La paralysie périodique familiale."

49 How Should Quinin Be Administered? A. Martinet (Paris).—"Comment il faut administrer la quinine."
50 *Direct Surgical Intervention for an Aneurysm of the Aorta. T. Tuffier (Paris).—"Intervention chir. directe pour un anevrysme de la crosse de l'aorte."

Revue de Chirurgie (Paris), March.

51 *Symmetric and Ignored Fractures of the Clavicles. Ch. Féré (Paris).—"Fractures symét. et ign. des clavicules."
52 *The Segment of the Intestine Above an Intestinal Stenosis. Patel (Lyons).—"Du segment de l'intestin sus-jacent à une sténose int."

Revue Hebd. de Laryngologie (Bordeaux), February 15 to March 15.

53 Danger of Expectant Treatment in Suppuration of the Middle Ear. Brindel (Bordeaux).—"Des dangers de l'expectation dans les suppurations de l'oreille moyenne."
54 *Nasal Vertigo and Epilepsy. A. Jousset (Lille).—"Vertigo nasale et épilepsie."

Progres Medical (Paris), March.

55 *Benefits of Appropriate Surgery for the Mentally Unbalanced. F. Glénard.—"A propos de la chirurgie chez les aliénés. Psychoses et névropathies."

Semaine Medicale (Paris), March 12.

56 *Is There a Renal Diabetes? F. Munch (Paris).—"Existe-t-il un diabète rénal?"

March 19.

57 Study of Case of Cervical Pott's Disease. Raymond (Paris).—"Sur un cas de mal de Pott cervical."

Centralblatt f. Bakteriologie, etc. (Jena), Nos. 3 and 4.

58 Osteomyelitis and Phlegmons Caused by the Bacillus of Pneumonia. F. Schlagenhaufer (Vienna).—"Osteom. und Phlegm. erzeugt durch den Bac. Pneumoniæ."
59 New Species of Bacilli of Hemorrhagic Septicemia. E. Klein.—"Bacterium Phasianicida."
60 Tuberculosis in Cold-Blooded Beings. H. Herzog (Wuerzburg).—"Tub. im Kaltblüterorganismus."
61 New Pyogenic Branching Bacterium. W. K. Stefansky (Odessa).—"Ueber ein neues, Eiterung hervorrufendes, verzweigtes Bakt."
62 Babes-Ernst Corpuscles and the Virulence of Bacteria. C. J. Gauss (Göttingen).—"B.-E. Körperchen und Virulenz bei Bakterien."
63 Behavior of Colon Bacillus in Respect to Certain Nitrogenous Substances and Starch. M. Pfaundler.—"Ueber das Verh. des Bact. coli commune zu gewissen Stickstoffsubstanzen und zu Starke."
64 Biology of the Gonococcus. H. Wildbolz (Berne).—"Zur Biologie der Gonokokken."
65 Tubercle Bacilli in Butter. A. Anjesky (Budapest).—"Ueber das Vorkommen der Tub.-Bac. in der Budapester Marktbutter."
66 Etiology of Acute Dysentery in the United States. E. B. Vedder and C. W. Duval (Philadelphia).
67 Study of a Disease of the Extremities Affecting Young Cattle in South America. O. Voges (Buenos Ayres).—"Ueber eine in S. A. bei jungen Rindern vorkommende Erkrankung der Extremitäten."
68 Panophthalmia Bovina Carcinomatosa. O. Voges.
69 Fowl Plague. E. Centanni (Ferrara).—"Die Vogelpest."
70 New Style of Syringe for Bacteriologic Investigations. F. Inghilleri (Rome).—"Ein neuer Spritzentypus f. bakt. Untersuchungen."
71 A Practical Filtering Apparatus. H. Preisz (Budapest).—"Ein prakt. Filtrierapparat."
72 Cultivation of Anaerobics. R. Turro (Cataluna).—"Zur Anaerobenkultur."

Cent.-Blatt f. Chirurgie (Leipsic), March 8 and 15.

73 Advantages of Krause's Anastomosis Clamp. H. Garnerus.—"Fall von Anus praeternaturalis mit der K. Anastomosenklemme behandelt. Glatte Heilung."
74 Two Cases of Partial Unilateral Rhinoplasty. F. de Quervain (Chaux-de-Fonds).—"Ueber partielle seitliche Rhinoplastik."

Deutsche Med. Wochenschrift (Leipsic), March 13.

75 *Compulsory Notification of Cases of Tuberculosis. C. Fraenkel (Halle).—"Die Anzeigepflicht bei Tuberculose."
76 *Study of Cancer Tissue and Etiology. Feinberg (Berlin).—"Zur Lehre des Gewebes und der Ursache der Krebsgeschwülste."
77 Tetanus Germs in Gelatin. Schmiedicke (Berlin).—"Weiteres ueber Tetanuskeime im der käufl. Gelatine."
78 Intoxication from Chemicals Used in Flash Lights. A. Graefe (Berlin).—"Fall von Vergiftung durch Chloroxyd und Chlordioxyd."
79 Pancreas and Liver Affection Without Glycosuria. Lenné (Neuenahr).—"Pankreas- und Leberkrankung ohne Glyc."
80 *Intravenous Injection of Credé's Colloid Silver in Septic Affections. J. Mueller (Buetow).—"Die intrav. Inj. von Arg. coll. Credé bei sept. Erkrankungen."

Muenchener Med. Wochenschrift, March 11.

81 Principles and Dangers of the Treatment of Abortion. H. Sellheim (Freiburg.—"Prinzipien und Gefahren der Abortbehandlung."
82 *Mechanism of Albuminuria by Egg Albumin. M. Ascoli (Pavia).—"Ueber den Mech. der Albuminurie durch Eiereiweiss."
83 *Danysz's Rat Bacillus. E. Wiener (Vienna).—"Ueber den Bac. Danysz."
84 *Bactericidal Action of Roentgen Rays. H. Rieder (Munich).—"Nochmals die bakterientödtende Wirkung der Röntgenstrahlen."
85 Center for Reflex Contraction of Pupil and Study of Pupil Immobility. K. Baas (Freiburg i. Br.).—"Zentrum der reflekt. Pupillenverengung und Sitz und Wesen der reflekt. Pupillenstarre."
86 Voluntary Dislocation of the Upper Arm. J. Riedinger (Würzburg).—"Ueber willkürliche Verrenkung des Oberarmes."

Wiener Klin. Rundschau, March 9 and 16.

87 *Internal Use of Chloroform and Its Dangers. E. Franck (Berlin).—"Die inn. Anwendung des Chloroforms und ihre Gefahren." Concluded from No. 9.
88 Study of the Utilization of Iron by the Organism. A. A. Lerner (Vienna).—"Wie verhalt es sich mit der Ausnützbarkeit des Eisens für den Organismus?"
89 *Microscopic Investigation of the Blood for the Diagnosis of Intra-abdominal Suppuration. J. Schnitzler (Vienna).—"Ueber die Verwerthung der mikr. Blutuntersuchung zur Diagnostik und Indicationsstellung bei intra-abdominalen Eiterungen."

Wiener Med. Presse, January 12 to February 16.

90 Cases in Abd. Surgery. R. von Mosetig-Moorhof.—"Casuistik der Abd. Chir."
91 Hydrotherapy in Treatment of Pulm. Tuberculosis. W. Winternitz.—"Lungentub. und Hydrotherapie."
92 *Experimental Study of Treatment of Fractures. B. Rossi (Milan).—"Exp. Beitrag zur Frage der Behandlung von Knochenfrakturen."
93 *Treatment of Ileus. L. Chassel (Vienna).—"Zur Behandlung des Ileus."
94 Elimination of Ammonia in Urine. W. Camerer, Jr.—"Ammoniakausscheidung im menschl. Urin."
95 Atony of the Stomach. A. Pick.—"Ueber Magenatonie."

Roussky Vratch (St. Petersburg), January and February.

96 A Glance at the Science of Obstetrics and Gynecology in the Past, Present and Future. V. S. Gruzdeff (Kazan).
97 Application of the Mirror Table for the Diagnosis of Flat-Foot. G. I. Turner.—"Prostoe prisposobleníe dlya opredeleniya ploskoy stopi stolik Bradford'a e Loretť a."
98 Walking Apparatus for Paralytics. Mme. M. K. Valitzkoy.—"Apparat dlya paralizovannix."
99 Influence of Color Perception on the Pulse Curves. M. Reznikoff.—"O pulsovoy krivoy e o vliyanii na nee tzvetovova ostchestcheniya."
100 *Exp. and Clin. Experiences with Phototherapy. N. A. Velyaminoff.—"Svyetolechenie po Finsen'u na osnivanie exp. e klin. izsledovanii v. Acad. chir. Clinikye."
101 Prophylactic Measures Against Gonorrheal Infection. L. I. Jacobsohn.—"Preloxranitelniya myeri protiv zarajenie perveloem."
102 Treatment of Stricture in the Urethra by Electrolysis. B. N. Xoltzoff.—"O letchenie sujenii motche ispuskatelnova canala elektrolizom."
103 New Reaction of Certain Oxydizing Substances in the Organism. G. N. Gabritchesky.—"Novaya reaktziya na nyekotorix vozstanovlya. vestchestva organisma."
104 *Forward Luxation of the Humerus Complicated by the Tearing Off of the Tuberculum Majus. G. I. Turner.—"O perednem vivix pletcha e ob oslojnenie yevo otrivom bolshova bugorka."
105 Banti's Disease. P. Rozanoff.—"Bolyezn Banti."
106 Exp. Study of Alexins in Serum of Children. G. A. Guseff.—"Opit. kolitch. opredelyenie alexinov i sivorotke ot boly. e zdorovix dyetei."
107 Treatment of Glandular Tuberculosis. B. S. Kozloffsky.—"Letchenie bugortchatki. lymph. jelez."
108 Tumor in Cerebellum. M. D. Xanutina.—"Slutchai opuxoli mozjetchka."
109 *Treatment of Tetanus by Instillation of Antitetanus Serum in the Spinal Canal. P. Jacob.—"Letchenie stolbnyaka."
110 Differentiation and Treatment of Affections of the Esophagus. S. P. Fedoroff.—"Krasposnavaniu e letcheniu bolyeznei pistchevoda."
111 Specific Thyreotoxin. A. F. Mankovsky.—"O klyet. yadax tireotoksini."
112 Anchylosis of Both Hip Joints. I. I. Grekoff.—"K casuistik ankyloza oboix tazobedrennix sustavax."

St. Petersburg Med. Wochenschrift, February 16 to 20.

113 Cure of Paraplegia by Suggestion. L. Stembo (Wilna).—"Fall von unterer Paraplegie geheilt durch Suggestion."

Revista Asoc. Med.-Farm. de Cuba, January.

114 Dr. Carlos Findlay and the Mosquito Theory of Yellow Fever.

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115 Clinical Evolution and Degeneration of Uterine Fibro-Myomata. I. R. Irigueros (Madrid).—"Evolucion clin. y deg. de los fibro-miomas uterinos."
116 *Treatment of Tuberculosis. J. Garcera (Valencia).—"Tratamiento de tub."

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2. **Myelocene in Deafness.**—Watson offers the theory that bone marrow produces an internal secretion of vital importance in the economy and that it is a powerful prophylactic against the injurious action of various bacteria which in health are present as saprophytes in different tissues and that defects in this bone marrow are likely to be followed by pathogenic action of the same micro-organisms. The results of this pathogenic activity vary with the individual reaction. The main sites of these bacteria are the respiratory and alimentary tracts and the skin. In this article he deals with chronic suppurative middle-ear disease and promises in a later one to give the results of

observation in cases of psoriasis. As a sort of control experiment he uses olive oil as a mechanical lubricant and the combination of rectified spirits and glycerin on account of its stimulating effect on the circulation of the membranes of the middle ear. Having satisfied himself as regards the effect of mere lubricants, he proceeded to apply the substance derived from the bone marrow according to his theory and gives the results in 20 cases. The tests mainly included the watch, whisper and ordinary voice, the latter being the one which he found most satisfactory. Of the 20 cases treated, 4 were of a mixed type, the tuning-fork conduction being greater by air than by bone. One case was of post-suppurative origin. The results are summarized as follows: "Of the 15 cases of apparently pure dry middle-ear disease, 11 showed a record of improvement fairly comparable to those already detailed, due allowance being made for the different degrees of deafness when the patients first came under observation. Two showed a marked improvement in one ear only, but as this improvement took place in the deafer ear, the practical benefit was slight; 2 cases, male patients aged 46 and 60 respectively, were uninfluenced by the treatment. Of the mixed cases 3 showed a practical improvement and one did not. The post-suppurative case improved. In some cases the improvement has been fully maintained, in others deterioration has set in slowly and progressed. Observations are at present being made on means of maintaining the improvement in the hearing power." It may be said here that there was a temporary improvement following the use of rectified spirits and glycerin. Olive oil was ineffective. The substance employed, which he calls myelocene, is prepared as follows: The bone marrow from selected normal bones with perfectly physiologic appearance is extracted with ether and the ethereal solution is evaporated down at first in the open and later over the warm bath. The fat is then rubbed up with 1 per cent. chloretone for preservation. It now appears as a whitish or faintly yellow fat with a strong odor, partly of ether, partly of chloretone, with a variable melting point. The fat with a low melting point is the only one that has proved satisfactory in use.

4. **Isolation of Typhoid Bacillus.**—The separation of typhoid from the colon bacillus in examination is often a matter of some difficulty, the latter being uniformly present in overwhelming numbers in any material likely to be contaminated with the typhoid bacilli. Moore first experimented with a W-shaped tube, using the Parietti serum gelatin, in which the material was introduced in one limb and the actively motile typhoid bacillus passes through it to the other, while the sluggish colon bacilli remain at the bottom of the first curve. This, however, while giving excellent results in artificial mixtures with a given strain of colon bacilli, was unsatisfactory for other strains. To meet this objection he used a modification of the Elsner potato iodid gelatin medium, which itself is slow in action though otherwise the best process, substituting agar-agar for the gelatin. Plates prepared with this medium were sown with mixed cultures of typhoid and colon bacilli and incubated for 24 hours in an incubator at 37 C. At the end of this time examination under a low power microscope shows very much the same difference between the two sets of surface colonies as is found in the Elsner gelatin after four or five days' growth, the typhoid colonies being very clear, transparent and almost invisible when strongly illuminated, and with irregular clean-cut margins, while the colon colonies were much larger, rounded and opaque. In this way the typhoid bacilli were isolated in pure cultures from numerous artificial mixtures, especially from Thames water contaminated with typhoid broth culture and old dejecta kept for five months.

5. **Typhoid Fever.**—Gibbes offers the following as a new point of diagnosis in typhoid, viz., the use of photography, which reveals the rose spots much earlier than the naked eye can recognize them. The best plan is to use orthochromatic plates and make a number of exposures as quickly as possible; a ray filter is required with some plates, but with Cadett's "spectrum" plates, this would not matter. The procedure is simple; cover the head and face with a light shawl and remove the covering from the abdominal regions, moisten a small bit of printed matter, and stick it on the skin to get the focus. The operation is greatly facilitated if an assistant throws all the light possible on the part by a mirror. No rules for exposure can be given, as the light varies, but out of six exposures of varying light one or two should show the rash. The greatest care is required in developing the plate. Over-exposure must be avoided and development should be slow, with a weak developer and not carried too far.

11. **Typhoid Fever.**—This first Milroy lecture by Corfield is historic, giving the history of the development of the theories of typhoid to their final verification by the discovery of the typhoid bacillus.

12. **The Pulmonary Circulation.**—Brodie's experiments by the plethysmographic method on the lung brought out a number of facts in regard to its circulation, some practical deductions from which are made on the effects of certain drugs. He doubts whether there are vaso-constrictor fibers to the pulmonary arteries. He finds that his experiments rather contraindicate the use of adrenalin or suprarenal extract in case of pulmonary hemorrhage. Still, the results are not conclusive, as the effect of small doses taken internally is still to be considered. It seems to have a directly opposite effect on the pulmonary vessels from what it has on the systemic, when applied by perfusion in the vessels. The action of nicotin is somewhat similar to that of suprarenal extract, producing congestion of the lungs and rise in pulmonary venous and arterial pressure. Pilocarpin tends to produce systemic vaso-constriction, the effect of which, however, is obscured by marked cardiac inhibition simultaneously produced. Muscarin produces the same effect as pilocarpin.

14. **Staphylococcal and Streptococcal Infection.**—Bellei reports several cases of interest, two of fatal staphylococcal infection. The first was a man who was infected while operating on an abscess in a woman and pyemic abscesses resulted. The infection of the woman was not severe and she recovered. The second case was that of a boy who died in six days from a slight injury by a nail in the right leg. The streptococcal cases reported are of interest from the fact that in one there was a complicated infection with streptococci and saccharomyces, and he suggests that the natural defense, the phagocytes, were inefficient on account of the presence of the saccharomyces, though they might have been efficient if the streptococcus had been alone. Both patients had suffered for many years from disease of the teeth, with pus formation, and he suggests the ill effects following were largely due to this original infection. The micro-organisms which exist in the saprophytic state in the mouth become virulent when chronic disease of the alveoli and gums is present.

15. **Electric Shocks.**—A good deal of misapprehension exists as to the circumstances under which shocks at 500 volts may be felt or conditions which may lead to serious consequences. The electric pressure of 500 volts has become well established as a standard for electric traction, but pressure can be arranged to take another 100 or 150 without appreciable alteration. Conditions of commercial standardization seem to set the limit of working at about 600 volts. It is fortunate that no further extension of pressure is likely to be wanted. Since in a few cases 500 volts have been fatal, it has been assumed that they always are. But Trotter says that he has repeatedly stood on rails in wet boots, sat on rails and slapped the running rails with his bare hand. A pressure of 300 volts was used at first for traction purposes, but afterward it was found by Americans that 500 volts were high enough for economy and not too high for safety. The sensation of 500 volts may be a prick, a pleasant tingle, a hot burning or a convulsive shock. It does not depend directly on the actual current, but on the current density. With four or five square inches of contact between dry metal and bare skin, a steady continuous current of one or two milliamperes is hardly perceptible. From 3 to 8 are easily supportable, above 10 painful and above 35 almost unendurable. With larger currents and more surface, muscular contractions are added to the tactile sensations, especially if the current is at all unsteady. The alternating current seems to be four or five times more painful, but the sensation

is of a different character. It is difficult to make any exact determination between the current density and the sensation. More than about 14 milliamperes of steady continuous current at the finger-tip, making a poor contact of about one-sixth of a square inch, is unendurable, but 35 milliamperes from boot to boot, nearly the whole soles of the feet in contact, is much less painful. The resistance from hand to hand when grasping two pieces of dry trolley wire is about 5000 ohms, and he has found it as high as 14,000 ohms. The resistance between the body and earth or an iron rail through the sole of the foot, stocking and rail is of considerable importance. He finds the resistance from boot to boot, the boots being free from nails, varies from 45,000 to more than 200,000 ohms. The lowest measurement he observed with 500 volts was 25,000 ohms. Boots worn into holes and wetted gave 13,000. The mere touching of dry metal at 100 volts gave hardly any sensation, but with a larger contact the shock is severe. At 200 volts a light touch gives an unpleasant prick, but the current through a firm contact is from about 12 to 18 milliamperes, which can be borne without considerable pain. The sensation is very similar to that of heat. To grasp with bare hand two pieces of metal at 500 volts may give a very painful shock, but a light and quick touch is no worse than that from a half-pint Leyden jar. A 500 volt may be described as worse than touching a kettle of boiling water, but not so bad as touching a red-hot poker. Such shocks are common occurrences with careless linemen. Cases of fatal accidents from 500 volts are so rare that the condition can only be guessed at. If the skin resistance be reduced by moisture, especially if salt or chemicals be present, and if the contact be long and pronounced 100 volts may be fatal, but a man may be choked by a crust of bread under exceptional conditions. Neither the man in the street nor a man on a car runs any risk of taking 500 volts, skin to metal. Trotter has repeatedly done this and had no trouble, and his son, 7 years old, stood on a rail and played with a wire of 500 volts. The current was less than one-quarter milliampere, and he felt nothing. A fallen telephone wire is not so easily seen. It does not stop traffic and may twist around a person and burn him. With wet boots and wet ground the conditions are worse. The danger of the third rail on the electric railways is also mentioned, and he remarks that the effects are about the same as in the other case. Horses are especially susceptible to shock. What would be a painful shock to a man can cause instant death to a horse. Horses are terrified by conditions where a human being would feel no shock. It is possible that the resistance is very small and the current large. The horse is specially fitted for making contact with his shoes, which are connected by nails with his body. The conclusions are given as follows: "The dangers of electric shocks at 500 volts have been much misunderstood, greatly exaggerated and little investigated. The pressure of 500 volts has been deliberately chosen by electrical engineers because it is not dangerous under ordinary conditions. The conditions under which serious shocks are not produced by 500 volts are discussed in the paper, and it is safe to assume that all shocks more serious than those which are recorded are dangerous. Dry wood and dry boots without large nails offer so great resistance to electric current that it is perfectly safe to touch a trolley-wire while standing on a dry tram-car, or even while standing on the ground or on the rails. Wet weather makes a considerable difference, but boots must be very wet to allow enough current to pass to produce a severe shock. Men engaged in electric traction work receive many slight electric shocks at 500 volts and they might avoid most of them by taking more care. Dry clothing offers so great a resistance that no shock can be transmitted through it. The peculiar conditions under which shocks at 500 volts have caused death are discussed and are shown to be very exceptional. Experiments have been made on some 30 persons, including 12 women and 6 children, and it is proposed to make other experiments. With sound dry boots hardly anybody can feel a shock when standing on the live rail of an electric railway with one foot and a running rail with the other. With damp or wet boots a shock is felt, but neither the sensation nor the degree of wetness of the boots can be measured accurately. It is not possible to receive a shock by sitting or lying on a live rail so long as the clothes are dry and continuous—that is to say, so long as the live metal is not touched by the bare skin."

17. **Latent Malaria.**—Moore suggests conditions analogous to those described in certain plants, as occurring in malarial parasites. He has observed certain bodies which seem to him to be able to take a simpler form of reproduction than the ordinary one. In his observations of latent cases which he reports, the duration varied from a few months to several years, and he thinks it depends upon the following, viz.: 1. The parasite failed of development in sufficient numbers to liberate toxins and cause symptoms. 2. The parasites may become attenuated to such a degree that they do not produce the amount and the kind of toxins to manifest their presence, for they may be present in large numbers, as he has frequently observed. 3. The individual may have acquired a certain immunity, so that he prevents sufficient development of parasites which liberate toxins or the organism has become more resistant. 4. The attenuation, lack of development and partial immunity may have been of such a character that the symptoms manifest themselves in an atypical way, or the presence of some associated disease may so modify the symptoms of malarial fever that they become atypical. In this case he would be disposed to speak of it as a masked rather than a latent malaria.

22. **Uncinariosis.**—Bancroft believes that he has observed cases where reinfection with ankylostoma was produced through the skin by children walking through infected ground. He reports a case and the conditions which would favor this method of infection and gives Looss' statements in bearing out this theory. He notices that children or persons affected with ankylostoma are inclined to eat dirt and gritty materials and thinks that a feeling of well-being is produced by such ingestion, possible dislodging the parasites in the bowel.

23. **Antitoxin.**—Paton has used diphtheria antitoxin for septic conditions, giving it internally, and says that its range of action is: "1, specific for the staphylococcus and streptococcus in all their varieties; 2, specific for simple and traumatic inflammation (whether we regard such inflammation as being a distinct entity or only an attenuated sepsis, diphtheria antitoxin makes no distinction); 3, without parallel in medicine as an absorbent of inflammatory tissues left from the previous-mentioned inflammations, 1 and 2, and also of effused blood; 4, that it has considerable influence on the coagulability of blood, and 5, has great power in some depressed nervous conditions, probably due to septic conditions acquired or to autotoxemia." Though he can not say how it acts he is satisfied that it has a beneficial effect. The gastric secretion, he holds, from such data as he has obtained, has little effect on antitoxin. He believes the oral exhibition of glandular and other organic products, such as thyroid and suprarenal, is sufficiently a parallel to justify the exhibition of antitoxin serum in this way. His formula for using it is given as follows:

℞. Diphtheria antitoxin, 3000 units.
Trag. carmin q. s.
Aq. ad ..... ℥ii
M. Sig.: Dose one half ounce (which equals 750 units).

The time of administration varies from night and morning to every 4 hours, but the latter is only used in exceptionally severe cases; it is better to give too much than too little. For erysipelas ℥ss every 8 hours is usually effective. For acute peritonitis and appendicitis ℥ss at once, ℥ss in two hours, ℥ss four hours later, and afterward every 6 to 8 hours now usually does all that is required. For children the full doses may be given, as the antitoxin is harmless, but usually for small children half the dose is quite effectual. In about 1 per cent. of the cases either a little kidney irritation or skin eruption may be seen, but they are of the most superficial and fleeting character."

27. **Alopecia Areata of Dental Origin.**—Jacquet regards alopecia areata as a symptom resulting from various irritations. The most common of all these irritations is from the teeth. He has established in numerous instances that the alopecia has developed subsequent to a subjective series of phenomena in the sphere of the inferior trigeminal. The

localization of the alopecia is on the same side, and it is merely one factor in the syndrome of sympathetic manifestations grouped around the primary trigeminal phenomena. The cause of the syndrome is some irritation of the gums or teeth. The study of the routes of conduction clearly explains the connection between the initial irritation and the cutaneous symtom as well as the entire pathologic train. Suppression of the primary irritation entails the disappearance of the symptom-complex derived from it. He has established this train of phenomena in 27 out of 200 cases of alopecia areata and reports 21 in detail, with diagrams illustrating the routes of nerve conduction and the close connection between the dental or paradental affection and the alopecia. He noted painless congestion in one case, painful congestion or congestive neuralgia in 7 and simple neuralgia in 19. The syndrome may include epistaxis, coryza, erythrosis, hyper- or hypo-thermia, adenopathy, swelling of the tonsil—all on the same side and connected chronologically and topographically with the alopecia and all with a substratum of latent and deep hyperesthesia of the nerves and muscles or of the former alone, most marked at their emerging points.

29. **Chloroform in Heart Disease.**—Panas attributes sudden death under chloroform to a bulbo-laryngeal reflex contraction of the vocal cords, from contact of the fumes with the glottis. This contraction prevents the passage of any air and even of the chloroform into the lungs. The mechanical phenomena of respiration on the part of the ribs and diaphragm continue as usual and deceptively simulate normal respiration in spite of the asphyxia. The heart soon ceases to beat and the death is erroneously attributed to the cardiac syncope, when in reality the contraction of the vocal cords was the primary trouble. In blue asphyxia the heart and the pulse persist and the thorax rises and falls normally. But the intoxication from the excess of carbon dioxid in the blood superimposed on the disturbances from the anesthetic, entails such a condition that it is impossible to resuscitate the patient. In both these cases the respiration and the heart action continue approximately normal until the danger point is long past. The anesthetist should devote his chief energies to surveillance of the free intake of air. He should listen closely and continuously to hear the laryngo-tracheal respiratory souffle. A useful precaution is the addition of an index to the receptacle holding the chloroform. Any disturbance in the regularity of the to-and-fro movements of the index should sound the alarm and the anesthetic should be suspended until respiration is restored to regular and complete action. Panas emphasizes that by observing these precautions there will never be any deaths from chloroform, even among patients with established heart disease. He has performed 15,000 operations and has never had a mishap. The reason why children take chloroform so much better than adults is because they protest against and resist the chloroform, cry and scream and in their excitement take deep breaths. This prevents the spasmodic closure of the glottis and enables the anesthesia to be complete with the minimum of chloroform. The persons for whom chloroform is inclined to be dangerous are not those with heart disease, but nervous persons with peculiarly intense reflexes easily induced and long persisting. Such patients require the closest surveillance; the chloroform should be administered drop by drop and suspended at the slightest suspicion of irregularity in the breathing.

31. **Sudden Death of Gastric Origin.**—Lancereaux affirms that two-thirds of the cases of sudden death in which the organs are found sound, are the result of reflex inhibition of the centers of circulation or respiration by a nervous disturbance in the stomach, usually due to dyspepsia and most frequent in dyspeptic subjects with a gouty taint. The digestive disturbances excite the heart, especially if there is dilatation or fatty deposit in the organ. Sudden death from this cause occurs at the time after meals when the digestive troubles are at their height, at night between 2 or 3 a. m., in the afternoon between 4 and 5. He describes several instructive cases in which he was able to resuscitate the patient by artificial respiration, but the syncope recurred again and again. In one there were no other symptoms except slight colic, nausea and vomiting, but the syncope kept recurring and at last resuscitation was no longer possible and the patient died. The trouble began four days before with an indiscretion in diet, which had been followed for three days by vague dyspeptic disturbances and accelerated pulse. Death was undoubtedly due to arrest of the heart action. The physician with his finger on the pulse was able to foretell the approach of the syncope each time. It invariably commenced by the total disappearance of the pulse, followed by contraction of the jaws, rigidity of the muscles of neck and thorax, stoppage of respiration and apparent death, which would have been actual death if artificial respiration had not been practiced at once. Stimulation of the nerve terminals in the mucous membrane of the stomach induces the inhibition of the bulbar reflex center and hence arrests the heart. Death from this cause is frequent. Hillairet and Potain are examples of it. Neither had any organic affection of the heart or arteries and both retired at night in good health and were found dead in the morning. The prophylactic indications are to treat the dyspepsia and moderate the excitability of the nervous system. The majority if not all of such subjects are impressionable nervous persons, leading a more or less strenuous life and digesting poorly. In the presence of an attack, artificial respiration should be practiced, the patient reclining and the head low, the heart stimulated and the excitability of the bulbar center neutralized by abolishing reflex action as far as possible. This can be accomplished by the proper dose of morphin, but too weak a dose exaggerates the reflexes and too strong a dose is toxic. The physician must individualize for each patient and for the origin, the nature and the intensity of the trouble in each case. The initial excitation may be moderated when it proceeds from the stomach by leaving the organ in repose, allowing nothing except possibly water with sodium bicarbonate. Digestive disturbances in the intestines are liable to induce sudden death in this way the same as when located in the stomach. Instances of this are not rare in convalescence from typhoid fever or dysentery.

33. **Heredity in Relation to Movable Kidney.**—Guillet thinks that movable kidney should not be considered a malformation or a sign of degeneracy, as some maintain. In a few exceptional cases it is possible that a general tendency to looseness and laxness of the tissues may be inherited. In other cases the condition is acquired. The shape of the paravertebral recess in which the kidney lies is peculiarly adapted in women to favor the production of movable kidney under slight provocation.

35. **Insanity in the French Army.**—Granjux states that the proportion is about .4 to 1000 men. This proportion is doubled in the troops stationed in Africa, quintupled in the prisons and sextupled in the "compagnies de discipline."

36. **Lactate of Mercury in Treatment of Syphilis.**—Gaucher asserts that the neutral lactate of mercury is of all the mercurial salts the one best adapted for the treatment of syphilis, either by the mouth or in subcutaneous injection. It is prepared by dissolving the red oxid of mercury in 10 per cent. lactic acid. The salt thus obtained belongs to the organic series; it is easily made and of almost indefinite stability; it is scarcely at all irritating and contains so much mercury that 1 cg. a day in a subcutaneous injection is an ample dose.

37. **Prokhoroff's Method of Treating Syphilis.**—Scherb has been testing this method of treating syphilis and describes three cases of severe and old encephalopathy and myelopathy remarkably benefited by this treatment, which is based on the principle that mercury which is frequently toxic in repeated small doses is not so in large doses at sufficient intervals. Each case had been rebellious to ordinary mercurial treatment. One was so far advanced that the benefit was only transient as the patient soon died. He injected in one case of syphilitic general paralysis 18 cg. of the salt and the same amount 12 days later and 12 cg. after another interval of 14 days. The acute paralytic manifestations subsided in less than a year and the improvement amounted to resurrection. Another patient with the "cerebellar syndrome" and atrocious cephalalgia was completely cured after three epidural injections of the same amounts at ten-day intervals. There was a slight pollakiuria,

due probably to some irritation of the nerve rootlets innervating the bladder and urethra.

38. **Relations Between the Spindle-Spirillae Symbiosis and Diphtheria, Etc.**—Simonin relates a number of clinical experiences to sustain his assertions that the symbiosis of the spindle-shaped bacillus and spirillæ (Vincent), is of great importance in pathology. These parasites are superficial and not toxic. They never invade the general circulation and are never found except in some cavity in direct communication with the mouth. Their action is restricted to boring a passage through the skin or the mucous membrane. But the boring of these passages provides an entrance for germs capable of causing dangerous secondary septicemia and consequently the spindle-spirillæ combination is a menace. Every cause altering the pharyngeal epithelium favors the implantation of the associated germs, but they are easily destroyed by simple antiseptic measures.

40. **Pathogenic Deductions from Freezing Point of Hydatid Fluid.**—Surmont found that the freezing-point of hydatid fluid is about the same as that of the lymph. The hydatid membrane is evidently permeable in both directions for crystalloid and colloid substances. These facts explain the slight amount of molecular interchanges between the parasite and its host and also the phenomena of intoxication which supervene after violent osmotic exchanges, such as occur after puncture and partial evacuation.

41. **Study of the Diazo Reaction.**—Deléarde is convinced that the diazo-reaction is not produced by absorption of the products of intestinal putrefaction, as the ingestion of powerful antiseptics, such as the saline purgatives, do not diminish it. There is no proportion between the amount of indican in the urine and the intensity of the diazo-reaction. On the other hand, the reaction diminishes or is completely suppressed under the influence of the phenol group, phenol, salol, benzo-naphthol and betol. This effect is evidently due to the action of the phenol on the substances in the urine which induce the diazo-reaction.

42. **Relations Between Cutaneous Affections and the Size of the Stomach.**—Butte noted that the size of the stomach was larger than normal in cases of eczema, herpes, psoriasis, acne, urticaria and alopecia in his experience. Assuming that the normal adult stomach measures 8.5 to 10 cm. vertically and 9.5 to 11 cm. horizontally, the increase in size is evident in the list of 34 cases he publishes. The size also parallels the extent and intensity of the cutaneous affection. In a case of eczema for instance, the stomach measured 11x14 cm. and subsided to 10x12 when the eruption vanished. In another case, from 12x17 the stomach subsided to 9x11 as all traces of the eczema disappeared. In a case of chronic eczema of the nails the stomach measured 12x20. Among the cases of herpes was one with 12x15 during and 10x12 after recurring herpes. One patient with alopecia, 13x17, and only 9.5x14 as the alopecia subsided. One with urticaria, 10x15 during and 8x11 after the attack. One with acne of the face for 6 years, 12x16 and 10x14 as it healed. In seborrheic eczema and psoriasis alone, the size of the stomach did not diminish during recovery from the cutaneous affection.

43. **Hysteric Vomiting in Children.**—Carrière describes two cases of severe repeated vomiting in girls of about 9 years of age. There was no organic lesions. The vomiting had been preceded by other neuropathic manifestations, somnambulism, arrhythmic chorea, etc. It did not affect the general health and could be induced, modified and even suppressed at times by purely psychic causes. A hysteric origin was consequently probable, and both of the children were promptly cured by a catheterization of the stomach. Other practitioners have been successful in such cases by administering methylene blue pills or some other impressive measure, by suggestion under chloroform, by hypnosis, and Basset actually performed a laparotomy.

44. **What We Can Learn from Homeopathy.**—Bommier is a converted homeopathist, although he only confesses that he studied homeopathy from curiosity. He thinks that certain of its principles, revised and corrected, may be studied with profit by every physician. He claims that among these principles are: 1, the necessity of thorough study of the drug to be used; 2, that a drug should not be combined with other less known drugs without good cause; 3, that the dose should be as small as possible; 4, that masked expectant treatment should be sometimes raised to an actual principle; 5, that the diet should be strictly supervised, with what might seem at first view to be almost puerile regard to details; 6, that the possible opposition of the effects of the same drug at different doses should never be forgotten; 7, utilize the similia similibus, *alias* substitutive method, for whatever it can possibly accomplish.

46. **Lumbar Puncture for Cephalalgia.**—Carrière states that intense cephalalgia in 4 cases of tubercular meningitis in his service ceased after lumbar puncture. The fluid was under very high pressure; moderate pain recurred later in 2. The same procedure relieved the intense headache in a case of acute, fatal hydrocephaly. No relief was obtained in a case of empyema of the frontal sinuses. The cerebrospinal fluid flowed very slowly in this case. In another of uremia with intense headache, the cerebrospinal fluid flowed very slowly and the intervention was ineffective, but in a second case the fluid was under high pressure and the cephalalgia disappeared permanently after withdrawal of 90 c.c. In 2 patients with migraine, there was no improvement after lumbar puncture in one, and only a small quantity of fluid could be withdrawn. In the other the puncture allowed the immediate escape of 50 c.c. and the attack was arrested at once and without vomiting. It proved ineffectual in 6 cases, one a chlorotic patient, the others with adenoids. These results indicate that the headache in one class of cases is due to hypertension of the cerebrospinal fluid and is relieved by evacuation of a certain amount. When it is the result of some organic or functional disturbance of the brain or vasomotor action, it is not amenable to lumbar puncture. Carrière has but once witnessed headache occurring after the lumbar puncture. That patient, instead of reclining afterward, according to instructions, walked home and suffered from intense headache for twenty-four hours, probably from the motion and upright position. When the previous cephalalgia persists after the lumbar puncture its characteristics remain unaltered.

50. **Direct Surgical Intervention for an Aneurysm of the Aorta.**—Tuffier observes that an aneurysm of the arch of the aorta can not be reached by the surgeon when it is located in the descending portion. It can not be isolated when it is very large and adherent to all the organs of the mediastinum, and it would be impossible to extirpate it in case of total ectasia of the artery or if too large an extent of wall is involved. As these three varieties of aneurysm are the most numerous, only a limited number at the best are amenable to surgical intervention. The degeneration of the wall observed at the autopsy in case of ectasia of the artery does not necessarily affect the intervention, as the part involved in the sac dilatation is the only part that ruptures. Sac-shaped aneurysms are therefore the only ones that indicate surgical intervention, and only those in which the moderate size encourages the hope of complete obliteration by the procedure. The diagnosis of this variety is possible with radiography; resection of the sac with lateral suture of the vessel is easily done and promises to be effective, although cases of this character are very rarely encountered. To justify operation they must be accessible and possible to isolate and extirpate. They must be the only arterial lesion and beyond the reach of medical aid, threatening a speedy fatal termination. He recently found these conditions united in a woman of 40, free from syphilitic taint, with an extremely painful pulsating tumor with synchronous pulse, both radial and temporal, on both sides. Its location indicated that it must be an aneurysm of the ascending portion of the arch of the aorta between its origin and the emergence of the brachio-cephalic trunk. The slowness with which the aneurysm filled again after it was reduced, the absence of concomitant aortic insufficiency, the normal position of the arch of the aorta, and the single souffle, suggested a sac-shaped aneurysm with a narrow neck, rapidly increasing in size. It had only to ulcerate the skin to perforate outward, and had attained the size of a fist. There was no sign of any other arterial

lesion and the general health of the patient was perfect. Although fully informed in regard to the danger of an operation, she clamored for it as the radiating pains from the aneurysm were unbearable. Tuffier examined all the specimens of aneurysms that he could find in the museums and found seven which corresponded to his conception of the aneurysm in the present case, and indicated that they could have been successfully extirpated. The sac was found as he anticipated, but it was adherent to the second and third ribs and to the pleura. The second rib was actually imbedded in the tumor, and he cut it across on each side, not venturing to disturb the adherent portion. After the sac was emptied into the aorta, the opening was found only large enough to admit the forefinger and a ligature was thrown around it. The pulse and respiration showed no disturbance. He intended to remove the empty sac and suture the wall of the artery, but omitted to do so at the last, and replaced the flap and sutured the skin wound. The immediate results of the intervention were most satisfactory, but the patient succumbed in a few days to secondary hemorrhage from the sac which had gangrened. The conditions found at the autopsy were all favorable to the healing of the wound if the sac had been removed as first intended. The walls of the aorta around the neck of the sac were nearly normal, and a suture would probably have held firm.

51. **Symmetrical and Ignored Fractures of the Clavicles.**—Féré gives the skiagraphs of five out of six persons distinguished by the fact of a complete fracture of both clavicles at the junction of the outer third with the inner two-thirds. Velpeau described a similar case and regarded the fractures as congenital. In only one of the six were any functional disturbances noted, and most of the patients had served as porters or something of the kind requiring the carrying of heavy weights. Féré's cases were all in his service for the insane at Bicêtre. He believes that such symmetric fractures are probably congenital and are due to violent muscular action in some intrauterine convulsion.

52. **The Segment of Intestine Above an Intestinal Stenosis.**—Patel states that the walls of the intestine above a stricture are very often abnormally thick. This thickening is not proportional to the site, degree or age of the stricture, but always seems to coincide with some actual lesion of the mucosa. It consists of a pathologic infiltration of the muscle whose fibers are separated and dissociated, the infiltration involving and being most marked in the subserous and submucous cellular layers. This enlarged segment is diseased and should be sacrificed during an anastomosis, in order to operate entirely in sound tissue.

54. **Nasal Vertigo and Epilepsy.**—Jousset adds two more cases to the few on record of epileptic seizures with a nasal aura. The patient first experienced a tingling in the nose, followed by a heaviness in the head, formication and loss of consciousness. The face was at firt congested and then became pale at the height of the seizure. In one patient there was a traumatic deviation of the nasal septum to the left, and in the other, rhinitis with hypertrophy on one side and atrophy on the other. Operative treatment of the abnormal nasal conditions led to the complete disappearance of the epileptiform seizures. He asserts unconditionally that the nasal conditions in these cases evidently were a prominent factor in the development of the seizures.

55. **Benefits of Surgery for the Mentally Unbalanced.**—Glénard cites the case recently communicated by Picqué in which a patient with anxious melancholia was operated on for the relief of recurring appendicitis, and was cured of the mental troubles at the same time. In a recent case the removal of a previously nephrotomized kidney cured a severe psychosis. Christian has also reported a case of delirium which was permanently cured by an urgency operation for the relief of a strangulated hernia. Glénard believes that operative intervention on the mentally unbalanced should not be limited to urgency operations, but should be undertaken deliberately in certain cases as an indirect means of influencing the nervous system. Picqué has collected 132 operations undertaken not for the purpose of curing the mental trouble, but in response to general surgical indications. In 51 the mental trouble was cured at the same time as the surgical affection; in 21 the mental condition was much improved; in 42 unchanged and 8 patients died. The mental affection in similar cases, far from being an obstacle, should be an additional incentive to prompt surgical intervention, as it may accomplish the cure of two affections at once.

56. **Is There a Renal Diabetes?**—Munch observes that it seems to be established in experimental pathology that we are justified in admitting the existence of a glycosuria of renal origin. In certain cases, as an intoxication by cantharidin or after administration of theobromin, there is merely an increase in the permeability of the kidney. In other cases, as in phloridzin glycosuria, we may attribute to the kidney an actual sugar-producing rôle. These facts seem to be established in regard to animals, but there is much less certainty about them in human pathology. In all of the few cases that have been related the coincidence of sugar and albumin was certain. None of them afford positive evidence in regard to the relations as to cause and effect between the glycosuria and alteration of the kidney. It is impossible to class as renal diabetes any cases in which the renal affection did not unmistakably precede the glycosuria, or in which another cause can be incriminated such as gout or lithiasis, in the production of the glycosuria. Lépine has reported a case in which a woman of 69 died in coma with a glycohemia of 10.6 per cent. and atrophy of the kidneys. Achard and Weil have also published the case of a diabetic whose glycosuria diminished after an apoplectic attack while the hyperglycohemia increased. Such cases as these indicate that the permeability of the kidney plays a certain rôle, if not in the production, at least in the elimination by the kidney of the sugar in the blood. The reality of a renal diabetes has yet to be established, but in the meanwhile it seems to be possible and even legitimate to assume the existence in diabetes mellitus of an actual renal element.

75. **Compulsory Notification of Tuberculosis.**—Fraenkel advocates compulsory notification of tuberculosis when there is danger for the environment from the sputa, etc. He states that as long as this is neglected the campaign against tuberculosis lacks a most important aid. He observes that those who are quick to read the signs of the times are convinced that tuberculin is rising like the phenix from its ashes and heralds a new era in the treatment of tuberculosis.

76. **Etiology of Carcinoma.**—Feinberg has been studying cancer tissue for years, frequently making a thousand sections in every direction of a single carcinoma. He calls attention to the vacuoles observed in it when stained by the ordinary methods. These vacuoles or minute cysts have been supposed to be merely interspaces between the cellular elements of the tumor, when any attention has been paid to them. He has succeeded in demonstrating by new methods of technique, that these assumed vacuoles are in reality micro-organisms independent of the human tissues. They have a membrane with a double outline which takes an intense stain with orange G. They contain a nucleus surrounded by an unstainable clear zone and a plasma which does not take the nucleus stain. He says that the cancer tissue must be very fresh, untreated by disinfectants and not crushed during the operation of removal. He found mammary cancer the best adapted for the study of these micro-organisms as it is usually operated on at an earlier stage than internal neoplasms. He proclaims that these unicellular organisms are probably involved in the etiology of the tumor, and that their discovery will differentiate a dubious new growth. The encysted form in which he has found the micro-organisms is probably not the form under which they invade the tissues primarily. He describes his technique in full.

80. **Intravenous Injections of Colloid Silver in Septic Affections.**—Mueller's experience with a 1 per cent. solution of Credé's colloid silver or "collargol" has been so successful that he regards it as an actual specific in septic affections. He has thus treated 30 patients, in threatening erysipelas, pneu-

monia, epidemic cerebrospinal meningitis, phlegmonous erysipelas, puerperal perimetritis, pleurisy with effusion, peritonitis, appendicitis, empyema, etc. One or two injections arrested a felon and phlegmons. In a case of acute articular rheumatism fourteen days of salicylic medication had been ineffectual in arresting the disease, which was accomplished by two injections of the collargol. He injected it five times in an emaciated girl of 9 years, who was in a very bad condition as the result of a tubercular affection of both knees, which had required resection and removal of sequestra. The fever vanished after the injections of collargol and the wounds healed rapidly. Although he has injected as much as 2.5 gm. and even 5 gm. of the collargol solution, he has never witnessed any evil effects except the chill, which occurs in almost every case one to four hours after the injection.

82. **Mechanism of Production of Albuminuria by Egg Albumin.**—Ascoli relates experiments which demonstrate that the white of egg in moderate amounts causes no albuminuria in healthy individuals, although its presence in the blood may be disclosed by the biologic serum test, which also serves to differentiate it from the albumin normally in the blood. After excessive amounts of the egg albumin have been ingested or injected subcutaneously, it succeeds in passing the renal filter and induces albuminuria. When this occurs the urine is found to contain not only the egg albumin but also the albumin which is the normal constituent of the blood. He explains this by assuming that the kidney is relatively immune to albumin in small, physiologic amounts, but that it is injured by large amounts. The resulting lesion allows the passage of the egg albumin and also of the normal blood albumin.

83. **Danysz's Bacillus.**—Wiener announces that the virulence of the Danysz bacillus can be enhanced by cultivating it in raw eggs. It is then capable of inducing extensive epizoötics among rats. He injects 8 or 10 drops of a 1 per cent. solution of soda into a freshly laid egg and then introduces a loopful of the bacillus culture. The contents of the egg become transformed in the course of eight days to a highly virulent, practically pure culture, killing rats in five to seven days. Other rats fed with the intestines of the dead ones, succumbed even more rapidly. It was impossible to induce infection of fowls and rabbits even with these highly virulent cultures.

84. **Bactericidal Action of the Roentgen Rays.**—Rieder's tests have confirmed the bactericidal power of the Roentgen rays. It is not energetic enough to be a very prominent factor in their therapeutic application. The efficacy of phototherapy is due rather to the "reactive inflammation of the skin" determined by it.

87. **Internal Use of Chloroform and Its Dangers.**—Franck reviews 7 cases of ingestion of chloroform for the purpose of suicide and 14 in which it was taken by mistake. The amounts ranged from 2 to 30 gm., and one man recovered after having drank 60 gm. When the stomach is full the chloroform is vomited and very little is absorbed. In all these cases the narcosis was complete in ten minutes, much more profound than from inhalation of chloroform. Three small children drank a chloroform liniment prescribed for their father and two died. Franck warns against ordering chloroform for external application on account of the possibility of accidents from this source. He also urges the substitution of other equally effective substances for internal use when prescribing for heedless patients. Aqua chloroformii for rinsing the stomach should be prepared by the apothecary, and should never be used where there is a suspicion of an idiosyncrasy to chloroform. He cites several cases in which serious accidents were observed only to be attributed to this cause. The use of chloroform as a vermifuge has been condemned by Leichtenstein and others as ineffectual and dangerous.

89. **Microscopic Investigation of the Blood for Diagnosis of Intra-Abdominal Suppuration.**—Schnitzler summarizes the results of his researches and experience as follows: If leucocytosis is observed accompanying symptoms of ileus, it speaks against a mechanical obstruction of the intestines and proclaims the presence of peritonitis or appendicitis. If there are symptoms of ileus and no leucocytosis, the evidence is in favor of a mechanical obstruction, even if there is fever. The increased leucocytosis, if it is the only symptom of the increasing suppuration, might possibly serve as an indication for intervention without further delay, but there are usually pregnant concomitant symptoms at this stage of the process. The increase in the leucocytosis indicates the graduál increase in the suppuration, but it is impossible to schematize and set up certain figures as the absolute danger points. The general symptoms and the aspect of the patient are of greater importance for the diagnosis than the mere blood count.

92. **Experimental Study of Treatment of Fractures.**—Rossi reports the results of ten series of experiments on rabbits killed in one to thirty-six days after a bone had been fractured and treated by various methods. He found that massage and mobilization are evidently a distinct advantage in treatment of a fracture when there is no dislocation of the fragments; also for cases in which a temporary apparatus allows systematic massage.

93. **Treatment of Ileus.**—Chassel advocates evacuation of gases by puncture. The needle can be left for fifteen minutes to an hour or longer, and is a harmless and effective method of relieving and gaining time. The hole is invariably closed by the mucosa as the fine needle is withdrawn as he has established on the cadaver and also in the clinic. There is thus no danger of the escape of fecal matter.

100. **Experimental and Clinical Experiences with Finsen's Phototherapy.**—Velyaminoff reports successful curative results in 38 cases of ordinary lupus, 19 of the erythematous variety, 10 of rodent ulcer and 10 of telangiectasia. The experimental and clinical research undertaken at the same time confirmed the destructive influence of the light, applied in this way, on the lower organisms and also on certain cellular elements of the tissues, such as giant cells and the lymphoid cells in lupus. On the other hand, he established the fact that the light has a distinct action in promoting the formation of cicatricial tissue. The combination of these two actions explains the clinical benefit derived.

104. **Forward Luxation of the Humerus and Tearing Off of the Greater Tuberosity.**—This complication is not so rare as generally supposed, Turner proclaims, and the possibility of it should not be forgotten in examining the arm in such a case.

109. **Treatment of Tetanus by Instillation of Serum in Spinal Canal.**—Jacob reports two cases and states that this procedure has been followed by success in two-thirds of all the cases thus treated at the Charité. About 5 or 10 c.c. of cerebrospinal fluid are withdrawn and then 10 to 20 c.c. of antitoxin are injected very slowly, under weak pressure.

116. **Treatment of Tuberculosis.**—Garcera applies antiseptic substances directly to the lungs by means of electric discharges which carry the antiseptic to the affected points. This procedure is supplemented by inhalation of antiseptic gases and local application of medicated sprays over the lesion, alternated with the interrupted current. He claims to have cured 70 per cent. of his patients in the first and second stages by this method. This preliminary communication is merely for the purpose of establishing priority.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A PRACTICAL MANUAL OF INSANITY. For the Student and General Practitioner. By Daniel R. Brower, A.M., M.D., LL.D., Professor of Nervous and Mental Diseases in Rush Medical College, in Affiliation with the University of Chicago, and in the Post-Graduate Medical School, Chicago; and Henry M. Bannister, A.M., M.D., formerly Senior Assistant Physician, Illinois Eastern Hospital for the Insane. Cloth. Price, $3.00 net. Handsome octavo of 426 pages, with a large number of full-page inserts. Philadelphia and London: W. B. Saunders & Co. 1902.

PROGRESSIVE MEDICINE. VOL. I, 1902. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surg-

ical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 452 pages, 5 illustrations. Per volume $2.50, by express prepaid to any address. Per annum, in four cloth-bound volumes, $10. Philadelphia and New York: Lea Brothers & Co.

THE ROENTGEN RAYS IN MEDICAL WORK. By David Walsh, M.D. Edin., Physician Western Skin Hospital, London, W. Part I—Apparatus and Methods, Rewritten by Lewis Jones, M.D. Cantab., F.R.C.P., Medical Officer in Charge of Electrical Department of St. Bartholomew's Hospital. Part II—Medical and Surgical. Third Edition. Cloth. Pp. 316. Price, $2.50. New York: Wm. Wood & Co. 1902.

MORPHINISM AND NARCOMANIA from Opium, Cocain, Ether, Chloral, Chloroform, and other Narcotic Drugs; also the Etiology, Treatment, and Medicolegal Relations. By T. D. Crothers, M.D., Superintendent of Walnut Lodge Hospital, Conn. Handsome 12mo of 351 pages. Cloth. Price, $2.00 net. Philadelphia and London: W. B. Saunders & Co. 1902.

JOHNSON'S FIRST AID MANUAL. Suggestions for Prompt Aid to the Injured in Accidents and Emergencies. Edited by Fred B. Kilmer. Illustrated. Pp. 113. Cloth. Price, 50 cents. New Brunswick, N. J.: Johnson & Johnson. 1901.

FIFTH ANNUAL REPORT OF THE STATE INSTITUTION FOR FEEBLE-MINDED OF WESTERN PENNSYLVANIA. Polk, Venango County, for the Year Ending Sept. 30, 1901. Paper. Pp. 34. Oil City, Pa.: Derrick Pub. Co. 1901.

THE INTERNATIONAL MEDICAL ANNUAL: A Year-Book of Treatment, and Practitioner's Index. 1902. Twentieth Year. Cloth. Pp. 688. Price, $3.00. New York: E. B. Treat & Co.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., March 20 to 26, 1902, inclusive:

Edward C. Carter, major and surgeon, U. S. A., leave of absence extended one month.

Jere B. Clayton, lieutenant and asst.-surgeon, U. S. A., member of a board at Fort Myer, Va., to examine officers of the Army for promotion.

Marshall M. Cloud, lieutenant and asst.-surgeon, U. S. A., retired from active service on account of disability.

William B. Davis, major and surgeon, U. S. A., member of a board at Fort Myer, Va., to examine officers of the Army for promotion.

Willis S. Horne, contract surgeon, now at Fort Sheridan, Ill., relieved from further duty in the Division of the Philippines, and to proceed to his home, Marlin, Tex., for annulment of contract.

James P. Kimball, colonel, asst. surgeon-general, U. S. A., to report for examination by the retiring board in session at Governor's Island, N. Y.

Frank E. McDermott, contract dental surgeon, former orders directing him to proceed to Fort Crook, Neb., for duty revoked, but this revocation was cancelled by a subsequent order.

George Newlove, contract surgeon, leave of absence for two months granted.

George F. Owens, contract surgeon, to proceed from Washington, D. C., to San Francisco, Cal., en route for assignment in the Division of the Philippines.

Martin A. Probert, contract surgeon, now at Columbus Barracks, Ohio, is relieved from further duty in the Division of the Philippines and assigned to duty at Fort Crook, Neb.

William W. Quinton, captain and asst.-surgeon, U. S. A., leave of absence for one month granted.

Robert P. Robins, major and surgeon, Vols., leave of absence from the Department of California extended one month.

Louis A. Spaeth, contract surgeon, now at Fort Sheridan, Ill., is relieved from further duty in the Division of the Philippines and will proceed to Jersey City, N. J., for annulment of contract.

Louis A. Thompson, contract surgeon, leave of absence on account of sickness extended two months.

Gideon McD. Van Poole, lieutenant and asst.-surgeon, U. S. A., now at the General Hospital, Presidio of San Francisco, Cal., to report at the Army and Navy General Hospital, Hot Springs, Ark., for treatment.

Appointments, Promotions, Retirements, Etc.,

recorded in the Adjutant-General's Office between Feb. 15 and March 15, 1902:

Regular Army, Promotions.—Feb. 14, 1902: Lieut.-Col. Robert M. O'Reilly, deputy surgeon-general, to be assistant surgeon-general with the rank of colonel; Major Edward B. Mosley, surgeon, to be deputy surgeon-general with the rank of lieutenant-colonel; Capt. Benjamin L. Ten Eyck, asst. surgeon, to be surgeon with the rank of major.

Volunteers, Appointments.—To be surgeon, with the rank of major: Capt. Roger P. Ames, asst.-surgeon, Vols., Jan. 6, 1902. To be asst.-surgeons, with the rank of captain: Edward A. Romig, of Michigan, Feb. 5, 1902, and William J. S. Stewart, of Massachusetts, contract surgeon, Feb. 4, 1902.

Honorably Discharged.—The following captains, asst.-surgeons: Charles Anderson, February 16; Allen D. McLean, February 17; Jerome B. Thomas, February 27; Carl R. Hexamer, February 28; Wharton B. McLaughlin, March 10, and Joseph J. Curry, March 14, 1902.

Navy Changes.

Changes in the Medical Corps of the Navy for the week ending March 29, 1902:

Surgeon W. R. Du Bose, ordered to report on the *Wisconsin* to the Commander-in-Chief of the Pacific Station as fleet surgeon.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers for the U. S. Marine-Hospital Service for the seven days ended March 27, 1902:

Surgeon J. H. White, to proceed to Baltimore, Md., for special temporary duty.

Surgeon P. M. Carrington, to proceed to Fort Bayard, East Las Vegas and Santa Fe, New Mexico, for special temporary duty.

P. A. Surgeon H. D. Geddings to proceed to Baltimore, Md., for special temporary duty.

P. A. Surgeon J. B. Greene, granted leave of absence for seven days from March 18, 1902, under Paragraph 181 of the regulations.

A. A. Surgeon F. B. Adams, granted leave of absence for twenty days from April 1.

A. A. Surgeon B. Kinsell, granted leave of absence for ten days from February 10.

A. A. Surgeon F. Townsend, granted leave of absence for one month from March 15.

A. A. Surgeon W. O. Wetmore, leave of absence for fourteen days, granted by previous order, revoked.

BOARD CONVENED.

Board convened to meet at the Bureau March 24, 1902, for the physical examination of candidates for admission to the Engineer Corps, R. C. S. Detail for the Board: P. A. Surgeon H. D. Geddings, chairman; Asst.-Surgeon B. S. Warren, recorder.

APPOINTMENT.

W. E. Rice, of Maine, appointed acting asst.-surgeon for duty at Bath, Maine.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended March 29, 1902:

SMALLPOX—UNITED STATES.

California: Los Angeles, March 8-15, 6 cases; Sacramento, March 8-15, 1 case; San Francisco, March 8-16, 13 cases.

Colorado: Denver, March 8-15, 8 cases.

Illinois: Belleville, March 15-22, 2 cases; Joliet, March 1-15, 8 cases.

Indiana: Evansville, March 15-22, 5 cases; Indianapolis, March 15-22, 14 cases.

Iowa: Clinton, March 15-22, 1 case.

Kansas: Wichita, March 15-22, 5 cases.

Kentucky: Covington, March 16-23, 8 cases.

Maine: Portland, March 15-22, 4 cases.

Massachusetts: March 15-22, Boston, 19 cases, 2 deaths; Cambridge, 3 cases, 1 death; Fitchburg, 3 cases; Lawrence, 4 cases; Malden, 2 cases; Somerville, 2 cases.

Michigan: Detroit, March 15-22, 13 cases; Grand Rapids, March 8-22, 4 cases; Ludington, March 15-22, 19 cases.

Nebraska: Omaha, March 15-22, 29 cases.

New Jersey: Elizabeth, Dec. 28-March 15, 13 cases, 1 death; Hudson County, March 9-16, 48 cases; Jersey City, March 9-23, 78 cases, 1 death; Newark, March 15-22, 25 cases, 5 deaths.

New York: Binghamton, March 15-22, 1 case; New York, March 15-22, 66 cases, 13 deaths; Yonkers, March 14-21, 2 cases.

Ohio: Cincinnati, March 14-21, 25 cases.

Pennsylvania: Allegheny City, March 15-22, 1 case; Philadelphia, March 15-22, 35 cases, 3 deaths; Pittsburg, March 15-22, 4 cases.

Rhode Island: Providence, March 15-22, 5 cases.

South Carolina: Greenville, March 8-15, 7 cases.

South Dakota: Sioux Falls, March 15-22, 4 cases.

Tennessee: Memphis, March 15-22, 13 cases.

Washington: Tacoma, March 8-15, 10 cases.

West Virginia: Wheeling, March 15-22, 2 cases.

Wisconsin: March 15-22, Green Bay, 23 cases, 1 death; Milwaukee, 3 cases.

SMALLPOX—FOREIGN.

Belgium: Antwerp, March 1-8, 18 cases, 3 deaths.

Canada: Halifax, March 15-22, 9 cases; Hamilton, March 15-22, 1 case; Quebec, March 15-22, 22 cases; Winnipeg, March 1-15, 9 cases.

China: Hongkong, Feb. 1-8, 1 case.

Colombia: Cartagena, March 3-9, 1 death; Panama, March 10-18, 50 cases.

France: Paris, March 1-8, 3 deaths.

Great Britain: England—Leeds, March 8-15, 2 cases; London, March 1-8, 555 cases, 80 deaths; North Shields, Feb. 22-March 8, 16 cases, 2 deaths; Swansea, Feb. 22-March 1, 1 case; Tottenham, Feb. 22-March 1, 1 case; West Ham, Feb. 22-March 1, 7 cases. Scotland—Dundee, March 1-8, 1 case; Glasgow, March 7-14, 95 cases, 2 deaths; Leith, March 1-8, 1 case.

India: Bombay, Feb. 18-25, 8 deaths; Calcutta, Feb. 15-22, 8 deaths; Karachi, Feb. 2-23, 14 cases, 5 deaths; Madras, Feb. 8-14, 5 deaths.

Italy: Naples, Feb. 22-March 1, 9 cases, 1 death; Palermo, Feb. 22-March 8, 27 cases, 5 deaths; Rome, Jan. 18-25, 1 death.

Russia: Odessa, March 1-8, 2 cases, 1 death; St. Petersburg, Feb. 22-March 1, 11 cases, 8 deaths; Warsaw, Feb. 15-22, 2 deaths.

Spain: Barcelona, March 8-15, 5 deaths.

Straits Settlements: Singapore, Jan. 18-25, 2 deaths.

SMALLPOX—INSULAR.

Porto Rico: San Juan, Feb. 22-March 1, 14 cases.

YELLOW FEVER.

Mexico: Vera Cruz, March 8-15, 4 cases, 2 deaths.

CHOLERA—FOREIGN AND INSULAR.

Philippines: Manila, March 24, 18 cases.

China: Canton, March 17, 2 deaths; Fatshan, March 19, raging.

India: Bombay, Feb. 18-25, 5 deaths; Calcutta, Feb. 15-22, 84 deaths; Madras, Feb. 8-14, 10 deaths.

Straits Settlements: Singapore, Jan. 18-25, 21 deaths.

PLAGUE.

Australia: New Castle, March 21, present.

India: Bombay, Feb. 18-25, 701 deaths; Calcutta, Feb. 15-22, 176 deaths; Karachi, Feb. 2-9, 53 cases, 45 deaths; Karachi, Feb. 16-23, 52 cases, 48 deaths.